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PAPER TRADE JOURNAL

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PAPER

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Paper Production Shows Decrease In October

According to Identical Mill Reports Submitted to the Statistical Department of the American Paper and Pulp Association, Production For the Month Was Lower By One Per Cent Than For September—All Grades of Pulp, Except Easy Bleaching Sulphite, Kraft and Soda, Registered Decreases in Inventory in October

According to identical mill reports to the Statistical Department of the American Paper and Pulp Association from members and cooperating organizations, the daily average paper production in October showed a 1 per cent decrease under September 1930, and a 15 per cent decrease under October 1929. The daily average wood pulp production in October decreased 2 per cent under September 1930 and 16 per cent under October 1929.

The October production registered a decrease under October 1929 in news print, uncoated book, paperboard, wrapping, bag, writing, tissue, hanging and building papers. The production of all major grades of paper during the 10 month period ending October 1930 registered decreases under the totals for the same period of 1929. Shipments of all major grades also decreased during the 10 month period of 1930 as compared with the same period of 1929.

News print, paperboard, bag and building papers showed increases in inventory at the end of October 1930 as compared with the end of September 1930. As compared with October 1929, all grades, excepting wrapping, bag and building papers, showed increases in inventory.

Identical pulp mill reports for the 10 month period ending October 1930 indicated that 7 per cent more mitscherlich sulphite pulp and 1 per cent more kraft pulp was consumed by reporting mills than for the same period of 1929. The total shipments of all grades of pulp to the open market during the first 10 months of 1930 were approximately 12 per cent below the total for the same period of 1929.

All grades of pulp, excepting easy bleaching sulphite, kraft and soda pulps, registered decreases in inventory at the end of October 1930 as against the end of September 1930. As compared with October 1929, groundwood and soda pulps were the only grades whose inventory registered a decrease.

REPORT OF PAPER OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF OCTOBER, 1930

Grade	Production tons	Shipments tons	Stocks on hand end of month tons
News print	105,450	102,808	33,318
Book (Uncoated)	67,401	68,974	62,791
Paper board	194,880	194,030	59,941
Wrapping	47,826	48,291	40,992
Bag	11,909	11,756	5,170
Writing, etc.	27,589	27,691	53,607
Tissue	14,649	15,145	12,401
Hanging	4,829	5,268	5,233
Building	6,722	6,451	3,110
Other Grades	18,737	19,220	14,973
Total—All Grades	499,992	499,634	291,536

REPORT OF WOOD PULP OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF OCTOBER, 1930

Grade	Production tons	Used during month tons	Shipped during month tons	Stocks on hand end of month tons
Ground wood	62,702	75,800	3,068	53,433
Sulphite news grade	35,154	33,634	2,075	6,628
Sulphite bleached	23,632	22,049	1,776	4,495
Sulphite easy bleaching	3,247	2,670	459	1,194
Sulphite Mitscherlich	7,862	6,621	1,462	1,574
Kraft pulp	30,732	26,887	3,841	7,117
Soda pulp	19,891	14,036	5,606	3,579
Pulp—Other grades	84	.....	68	24
Total—All grades	183,304	181,697	18,355	78,044

F. A. Augsbury for Tariff on Pulp

[FROM OUR REGULAR CORRESPONDENT]

OGDENSBURG, N. Y., December 16, 1930.—It is claimed by Frank A. Augsbury, president of the Algonquin Paper Company, that the lack of a tariff on sulphite pulp in this country is aiding Swedish capitalists in an effort to corner the world market. At this time the local sulphite mill is being operated at only about fifty per cent of capacity which is attributed to the Scandinavian competition. Because of the lower cost of production abroad, mills in Sweden are able to undersell American manufacturers who are facing permanent shutdowns if Congress does not provide a remedy, in the opinion of Mr. Augsbury.

He called attention also to the striking contrast in the wage scales. "In Scandinavia," he said, "the best mill superintendents can be obtained for $2,000 a year while in this country their salary is around $6,000. Common labor in our mill here is paid from four to five times more than the workers in Finland, Sweden and Norway and Canadian sulphite mills are suffering from similar conditions. All we ask is the opportunity to compete on an even basis and if we fail to obtain it the results are inevitable and Northern New York communities in all sections will be affected severely. What we need is a tariff equal to the difference between the wage scales in this country and Europe."

Install Ross Equipment at West Point Mill

A complete heating and ventilating system for machine room, beater and finishing rooms has been installed in the West Point Mill of the Albemarle-Chesapeake Corporation. A Ross panel type hood has also been ordered for installation on their paper machine, as well as a Ross-Grewin High Pressure Vapor Removal System which has already been installed on their kraft machine.

Forestry Development Planned in Wisconsin

Reservation Commission Approves For Purchase Lands In Flambeau and Moquah Districts—Will Be Added to Present Federal Forest Areas — Forest Nursery to Be Started Near Rhinelander—D. C. Everest Actively Engaged In Movement

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., Dec. 15, 1930.—Forestry development in Wisconsin will be undertaken during the coming year on a mammoth scale in order to put into practical operation as soon as possible the ideas advanced to curb the declining pulpwood and timber supply. Some new plans were revealed at a recent meeting of supervisors of national foresters in the Lake States in Milwaukee with E. W. Tinker, district forester.

One of the paper mill men most actively engaged in futhering this movement is D. C. Everest, of Rothschild, vice president and general manager of the Marathon Paper Mills Company. He is a member of the National Forest Reservation Commission and has been appointed on President Herbert Hoover's thirteen-man timber conservation commission.

Among the Lands Approved for Purchase

Among the lands approved for purchase by the reservation commission are 13,553 acres in the Flambeau district of Wisconsin, and 3,327 acres in the Moquah district. These will be added to the present federal forest areas, mostly cutover lands on which trees will be planted. The commission also ratified the recess action covering purchase of 20,885 acres in the Flambeau district at a cost of $33,416.69.

Concurrently, the Wisconsin Public Lands Commission has given final approval to the sale of 1,000,000 acres of northern Wisconsin cutover lands to the federal government. Tracts located in Douglas, Washburn, Taylor, Langlade and Oconto counties will be turned over to the government. On the basis of a survey made by the forest service, the federal government already has agreed to purchase 930,000 acres.

Under the plans announced by Mr. Tinker and his staff, another forestry nursery will be started at once in the vicinity of Rhinelander, Wis. It will produce 10,000,000 young trees annually, the first of these to be available in two years. Its yield will be sufficient to plant 14,000 to 15,000 acres of cutover land yearly. It is expected that the budget bureau in Washington will release $100,000 immediately after the first of the year so this work can be started. About $10,000 will be spent for equipment and the remainder for labor.

Airplanes will be used extensively during the coming season to detect forest fires and prevent some of the annual losses, according to further plans. Rules have been set forth prohibiting smoking during dry seasons in federal areas. Forest roads will be closed to travel during such times, and emergency guards will be employed. A training school for forest fighters will also be held next spring, to acquaint workers with all kinds of equipment for this purpose.

Full co-operation in this work is to given by the Wisconsin Conservation Commission. Large areas have also been set aside by the state for reforestation, and a program of tree planting will be carried out as funds permit. The commission has organized eleven fire protection districts, each one comprising 800,000 to 1,000,000 acres, a large force of men and extensive equipment. The state legislature is expected to extend this work by larger appropriations when it meets this winter.

The effective date of the Interstate Commerce Commission's order establishing a maximum rate of 20 cents per 100 pounds on printing and wrapping paper from the Fox River Valley to Chicago has been postponed from January 2, 1931 to April 1, 1931. Northern Wisconsin paper mills are to have a maximum rate of 23 cents. These were prescribed in the general adjustment on paper rates, and represent slight increases.

Another rate situation has cropped out anew, with the desire of Western Trunk Line carriers and shippers at Minneapolis, St. Paul and Duluth to set aside the extension of Michigan zone C rates granted to the Fox River Valley and the west bank of Lake Michigan. The extension of Class C to these areas gave them the eastern scale, not only on shipments to the east across the lake, but also to the east via Chicago. Reductions were also given to St. Louis and other southern points by this change. Opponents of the extension want the zone C privileges removed, or extended further to take in their sections as well. A brief has been filed by the cities now enjoying the Zone C rates showing that increases will be a detriment to the progress of these industries, and may cause transfer of business from railroads to motor truck lines.

New Building for Paper Chemistry Institute

Erection of a building before next Fall to house the Institute of Paper Chemistry of Lawrence College, Appleton, Wis., was announced last week by Dr. Otto Kress, director. The institute now has quarters in the old gymnasium building of the college, where it was housed temporarily until it was under way.

Work and progress of the institute were explained by Dr. Kress in an address before the Lions Club of Appleton. He said there were many more applications for enrollment than the institute cared to accept, and its men therefore could be chosen with care. They come from all parts of the United States, either as college graduates seeking post graduate work,, or as either as college graduates seeking post graduate work, or as was organized and financed by the paper industry, and is managed entirely by paper manufacturers, can make its own choice as to its students and courses. Since establishment of its large reference library, several important research problems have come to it from paper mills.

While W. H. Anderson, of the Westinghouse Electric Company, was in the vicinity to address a TAPPI meeting, he took occasion to deliver this same talk to students of the institute, dealing with the use of paper in the electrical industry.

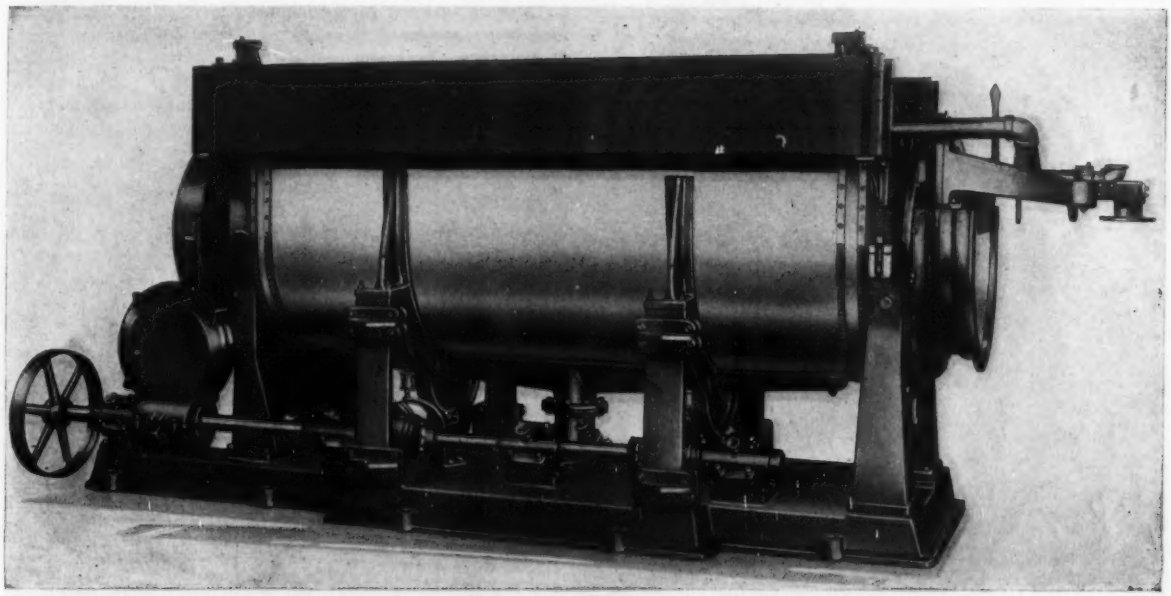
Wages and Employment Conditions

Wages and employment conditions in cities where paper mills are located in Wisconsin show a more favorable condition than other centers, according to a survey made by the Wisconsin Industrial Commission. At Wisconsin Rapids, for instance, the highest weekly wage average per capita was maintained of any of the thirty cities surveyed, figuring $27.13 per week. The aggregate payroll was 9.5 per cent larger on October 15 than on September 15. Appleton, Neenah, Menasha and other paper mill cities likewise showed favorable conditions. The opposite situation obtained at Oconto Falls, because the Falls Manufacturing Company's mill has been closed for some time, and unemployment there is considered the most acute in the state.

Mrs. Oscar Thilmany Dead

Announcement is made of the death of Mrs. Oscar Thilmany, last week at Frankfort-on-the-Main, Germany. She was the widow of the late founder of the Thilmany Pulp and Paper Company, Kaukauna, Wis. The couple left Kaukauna about twenty years ago to reside in Germany, where Mr. Thilmany died.

What would BIRD SCREENS mean in your mill? . . . .



For many mills, Bird Screens mean tremendous capacity.

For many others, Bird Screens mean superior quality stock.

For all mills, Bird Screens mean trouble-free performance at the lowest cost per ton.

Let us show you how Bird Screens fit the requirements of your mill.

BIRD MACHINERY

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SOUTH WALPOLE ◆ MASSACHUSETTS

4082

Chicago Paper Market Conditions Improving

Better Grades of Fine Papers Continue to Make Good Showing, Despite Irregular Demand Prevailing—News Print Price Situation For Forthcoming Year Apparently Settled—Kraft Paper Market More Stable Than of Late

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., December 15, 1930—The paper trade in Chicago is marking time until the first of the new year in the sincere belief that conditions will, or should, materially improve during the early spring months. "Marking time" is used only to designate the expected change in market conditions and does not mean that salesmen and jobbers are not making every effort to insure commitments for 1931. The better grades of fine papers continue to make the best showing, according to reports, but even these grades are spotty with rush orders on hand one week and a doleful lack of them the next. The news print situation seems to be settled for 1931 with reports indicating that contracts are being taken care of on about the same basis as in 1930—at least with no reduction in price. The kraft market continues to show a semblance of stability which is encouraging even at its low levels. The retail trade is reported to have picked up within the past two weeks. The board market prices are little changed over last week with over production continuing to be the important problem. Here and there, in board and in other grades, reports indicate that there are some grounds for the hope that 1931 conditions should be materially improved.

Paper Salesmen Discuss Differentials

The important series of discussions on differentials, inaugurated by the Chicago Division of the Salesmen's Association of the Paper Industry, got away to a flying start on December 8 when an unusually large group collected at the Hamilton Club for the first of the series. The first discussion concerned differentials on packing—skids, rolls, bundles—a subject which was evidently of much interest to the salesmen in attendance. A standardization of differentials was heartily endorsed and strict adherence to the present trade customs was recommended after a round table discussion. The meeting was dubbed one of the most successful yet held by the Association—successful from the standpoint of both attendance and educational benefit. On December 15 the salesmen will discuss differentials on colors and on trimmed and untrimmed papers. On December 22 the discussion will cover differentials on car loads and less car loads and on the first Monday in January the group plans to talk over differentials on weights. The series will undoubtedly be continued for some time. Harold Knott, president of the Local Division, presides at the meetings and gets the discussion under way. Once started, the members are not at all averse to speaking their minds about divers subjects relating to the topic of the moment and a sincere going over of each item is the result.

Paper Board Laboratory May Be Leased

A proposition is now under consideration whereby the laboratory equipment in the testing and designing laboratory of the Paperboard Industries Association, located in Chicago, may be leased to association employees who have been in charge of the laboratory, in which event service will be available to box manufacturers and others on a basis of service charge. At the recent annual meeting of the association a committee considered the question of continuing the Chicago box testing and designing laboratory. They reported that, while recognizing the value of this facility to the container and paper board industry, they recommended that in view of the fact that the laboratory is not used to any appreciable extent by members of the folding box group and only indirectly by members of the paper board group and a portion of the container group membership, it was a facility which, in general, was not availed of by the membership and as a service should not be paid from the general association fund. Under the present proposition, as stated above, members will have the privilege of using the laboratory and its equipment on a service charge.

Paper Merchants Discuss Business Conditions

The Chicago Paper Association held a very successful meeting, the first of its new fiscal year, on Tuesday evening, December 9. An unusually good attendance augured favorably for the coming year. The discussion was taken up, for the most part, by reports on general business conditions with members present indicating that they considered business was going along about the first of the year. The association also decided to postpone any further meetings until after the first of the year at which time new committee appointments will be announced and arrangements made for an active working schedule to be carried out throughout 1931.

News of the Industry

A three-day direct mail exhibit will be conducted by the Chicago Advertising Council on January 14, 15 and 16. Speakers at the luncheon meetings on each of the three days include W. J. Daily, sales promotion manager of the General Electric Company, refrigeration division, and John Howie Wright, editor of "Postage and The Mailbag." The aim of the exhibit is to show the place of direct-mail advertising in each of seven divisions of the distributive process. The displays will feature complete campaigns. Paper jobbers in Chicago will take an interest in the program which as in the case of all stimulus to the use of direct mail, helps to create new business and new uses for paper.

At the recent annual meeting of the Illinois Manufacturers Association, held in Chicago, Ray Wantz, of the Rockford Fibre Container Company, was elected a director of the association for a period of one year. Mr. Wantz' firm makes both corrugated and solid fiber containers at a modern plant in Rockford, Ill. The Manufacturers Association is one of the largest of its kind in the country and Mr. Wantz' appearance on the board indicates his genuine interest in trade matters of universal importance.

The Liberty Paper Box Company has recently been incorporated for $25,000 and will operate from a modern building at 152 West Whiting street, Chicago. The incorporators of the new firm are listed as Ales and Frank Naples, E. W. Gusman and John Stajenka.

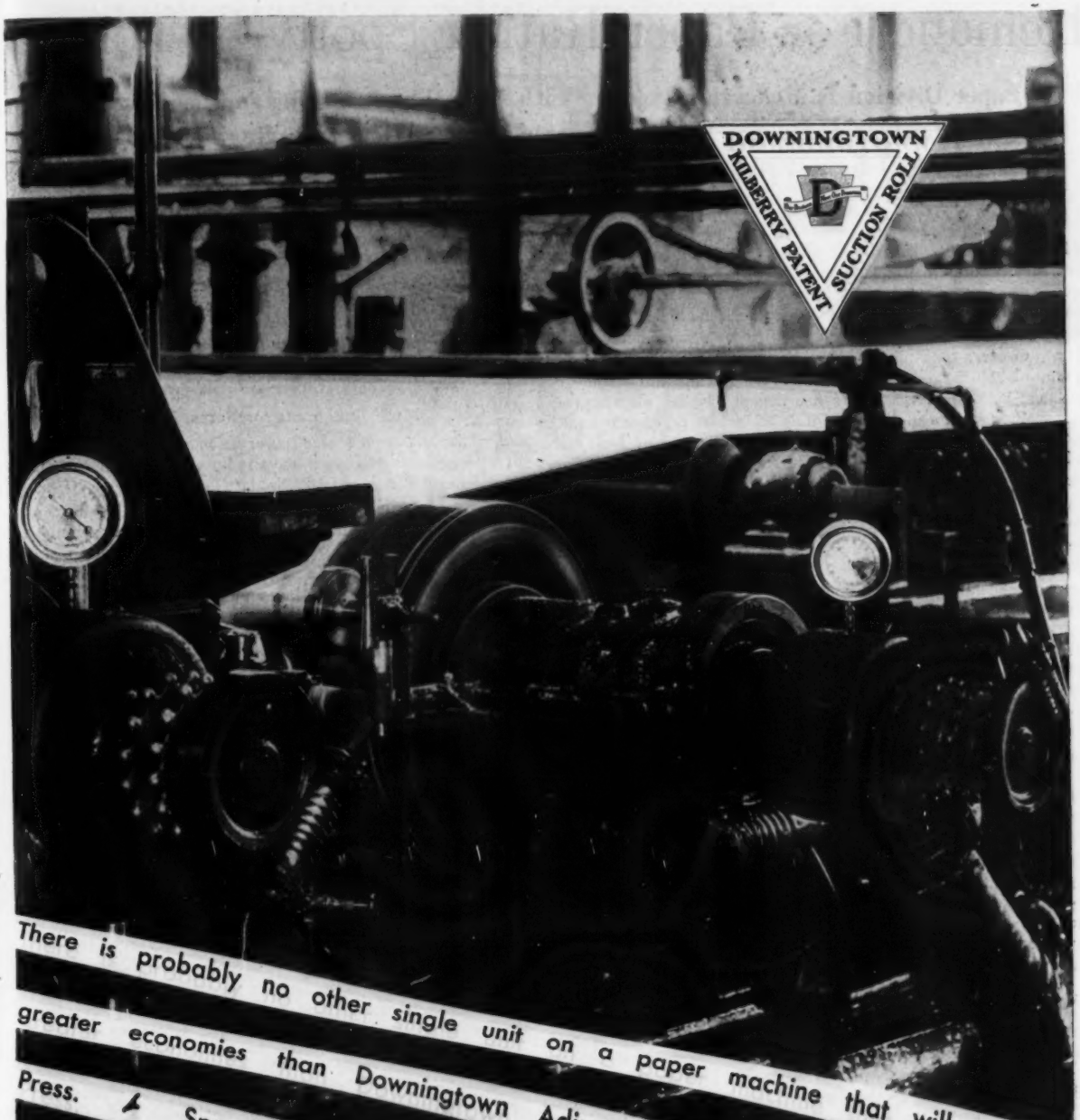
From the Chicago Paper Company, distributors, comes an attractive folder portraying the qualities and uses of Arrow Offset a "dual purpose paper" with a quality which permits it to reproduce half tones on an uncoated sheet. Arrow Offset is reported to be able to reproduce engravings up to 120 screen and an attractive colored illustration is included to bear out this fact.

The *Chicago Tribune's* paper mill at Thorold, Ont., produced a record run of 10,233 tons of news print in October, according to their report.

Paper Technologists Club Meets

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., December 16, 1930.—The Paper Technologists Club met Wednesday evening at the Columbia Hotel for dinner and a program. Two papers were presented. Harry C. Bradford, secretary of the Rex Paper Company, on "Distribution of Power Costs" and W. D. Langtry, president of the Testing and Engineering Company, Chicago, on "Power." The Chief Engineers Club was invited to join with the technologists at this meeting.



There is probably no other single unit on a paper machine that will produce greater economies than Downingtown Adjustable Suction Rolls at Couch and Press. Speeds have been increased, felt life has been lengthened, steam consumption has been reduced, production has been increased. For further information address the Downingtown Manufacturing Company, Downingtown, Pennsylvania.

Demand For Paper Rather Spotty In Toronto

Fine Paper Division Is Moderately Active, With Book, Bond, Writing and Ledger Papers Moving In Fairly Satisfactory Volume—Coarse Paper Section, Including Paper Bags, Continues Quiet—Ontario Paper Mills Are Fairly Busy

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, December 15, 1930—The fine paper section of the wholesale paper trade is doing a fair amount of business as the year draws to a close and there is an optimistic tone to conversation with paper distributors generally, although the coarse paper section, including paper bags, is less enthusiastic about the future, due to rather bad business during the past several months. It is felt, however, that all departments of the paper industry are about to return to normal and in the meantime the volume of business among firms handling fine papers has had nothing very disappointing about it. Some of the distributors say that the sales this year will only fall very shortly behind those of last year, which is a pretty fair record considering the business depression that has swept over Canada and her neighbor to the south this fall. Demand for bonds, writings, ledger papers and the like is keeping up fairly well and there is quite a good call for book paper by the publishing and other allied trades, with a distinct preference for the cheaper grades of stock. Some sections of the printing and lithographing trades are quite busy and there are instances where the larger firms have not only kept their staffs intact during the business depression, but have recently been working day and night shifts. A number of the printing houses have been proving heavy consumers of paper, although it must be said that there are also some firms that have been hard put to it to keep their presses running.

While the mill trade is fairly active the business coming to the machines is still spotty and in the present state of the market it is impossible to get orders ahead for any length of time. Orders that come in are for immediate delivery and none of the consuming trade will buy for future use. Some mills, both fine and coarse paper manufacturers, are hard put to it to keep any distance at all ahead of the machines, despite the greatest activity by salesmen and executives. Orders as a rule are for small lots and quick delivery, although some of the mills say there is now a disposition toward purchases of larger tonnages. Light weight paper manufacturers are busy but the paper converting trade is still rather quiet.

Employ More Men at Abitibi Canyon

Further additions to men employed at Abitibi Canyon electrical development of the Abitibi Power and Paper Company, by the Contractors have brought the total to 1,139. The work is hitting a hotter pace each week, and as it progresses permits other stages of the great contract to be started. The big transmission line through which the Hudson Bay Power Company intends to deliver 100,000 horse power to the Ontario Hydro-Electric Power Commission at Hunta is having its path prepared. Between Island Falls and Hunta already 420 acres have been cleared ready for the erection of the line. A surveying party is also clearing the road from Island Falls to Abitibi Canyon and has accomplished more than half the work. At the outset a temporary line was run to the Canyon so as to provide water for the work, but the present work is for the permanent construction. The de-watering tunnels are making good progress. There are two tunnels being driven on the west side of the river. The north end of the east tunnel nearest the river has been driven in 50 feet and the south end 74 feet, or 124 feet in all, out of a total length when completed, of 950 feet. The north end of the west tunnel is in 70 feet and work is already progressing on the south portal of the west tunnel, which will be 1,050 feet long. A shaft has been driven down to the level of the two tunnels and a crosscut 73 feet long is being driven toward the point where the west tunnel will pass. The excavations for the four piers to be constructed to hold the cantilever bridge at the dam site are complete except in the case of one of the Piers which is 75 per cent. complete. They began pouring cement on pier No. 1 on November 25, and therefore the erection of the bridge will proceed swiftly from now on. The camp is practically complete. The new dining room and reading room are closed in. The crusher plant and mixing plant are complete. Four mixers and a primary crusher are now installed.

More Equipment for Forest Protection

Erection of 25 new steel observation towers and establishment of several additional short-wave radio wireless stations have been programmed for this winter by the Ontario Forestry Branch with a view to reducing further the Province's annual bush fire threat. Ten towers will be distributed equally between the Kenora and Thunder Bay forest districts, three each in the Oba and North Bay districts, and one in each of the Trent, Algonquin Park, Sault Ste. Marie, Georgian Bay and Cochrane districts. All will be located at strategic points in the timberlands, and will be linked up by phones with the nearest forestry headquarters. Sites for the new wireless stations have yet to be selected, but they will, it is understood, be in readiness for operation by spring. Successful experiments late last fall with a wireless set on one of the Provincial Air Force's machines will probably mean the installation of sets on a number of planes in preparation for next season's fire hazard. At the present time the Government has more than 25 wireless stations scattered across the North. Since 1922, 281 observation towers have been built, 141 of which are steel, and the balance of the wooden variety.

Notes and Jottings of the Trade

At the Port Arthur plant of Provincial Paper, Ltd., the newer machine, No. 2, last week recorded on two successive days its highest runs since it has been in operation. On the first days it made over 165,000 lbs., and on the second day over 166,000 lbs.

G. C. Hurdman, of the Toronto office of the Abitibi Power and Paper Company, recently spent some time at Abitibi Canyon in connection with the transmission lines for the power project of the Ontario Power Service Corporation, subsidiary of Abitibi.

About 15,000 tons of sulphur have been unloaded at Campbellton, N. B., during 1930, for pulp mills. All the sulphur has been taken on by steamers at Galveston, Texas. The biggest importer of the sulphur has been the Fraser Companies, Ltd., for the pulp mills at Atholville and Edmundston. For the latter plant it was necessary to rail the sulphur across the top of New Brunswick.

A very arresting piece of advertising in color, printed on Oxford English Finish, and in the form of a folder, has just been put out by Provincial Paper, Ltd. It emphasizes the excellence of the paper in respect of attractiveness, legibility, type clarity, bulk and quick drying qualities, for text and line printing, silhouette illustrations and half tones, where too great detail is not essential.

W. Barclay, executive of the Vancouver office of the Powell River Company, recently suffered the loss of his mother, Mrs. Angus Barclay, who died in Los Angeles, Cal., at the age of 73 years.

R. Bruce Pincombe, of the Canadian International Paper Company, and formerly of St. John and Fredericton, N. B., has been transferred from Ottawa to Gatineau, Que., and has taken up residence there.

Putting the LAST in Tensilastic Rubber Rolls

Tensilastics LAST! . . . .

In every paper machine position where rubber rolls are practicable,—which are more varied than you perhaps realize,—Tensilastics have proven their ability to outwear ordinary rolls tremendously,—and at the same time deliver a degree of service that is reflected in improved product quality and lowered maintenance costs.

This faculty for long, dependable service is the result of a decade of expert concentration on paper mill problems, in close cooperation with machine builders and paper producers. Intensive research has developed a compound that is absolutely controllable and meets mill requirements perfectly.

Tensilastics have long life built into their very structure. Their rubber compound is "live", rebounding quickly after nip compression; practically immune to corrugations and wrinkles. On felt and wire rolls it is not susceptible to normal surface scratches or mars; will not chafe, pit or corrode. It needs regrinding only at long intervals. It is unaffected by water conditions, acids, dyes or fillers. Being unusually resistant to oxidation, Tensilastics may be stored for long periods without deterioration.

As table rolls, wire stretch and carrier rolls, Tensilastics have demonstrated their superiority over metal rolls. The free use of water at the wet end actually lubricates the rolls, reducing friction and adding life to the wire. We have records of mills that have used these rolls successfully for years. In press positions Tensilastics cushion the nip and prolong felt life. Crowning is easily achieved, controlled and preserved.

Tensilastics can be supplied in any density and any size your mill technique may require. Should your problem be an unusual one, remember that we have over forty years' accumulation of detailed data on unusual problems,—entirely at your service. Make use of American Wringer Company's roll service and counsel,—write us for detailed information.

American Wringer Co., Inc.

Roll Specialists for More Than 40 Years

33 No. La Salle St., Chicago—Woonsocket, Rhode Island—461 Eighth Ave., New York

Pacific Coast Representative: Walter S. Hodges, Lewis Bldg., Portland, Ore.

CANADIAN FACTORY: FARNHAM, QUEBEC

TENSILASTIC

RUBBER ROLLS

T9

Pennsylvania Paper Mills Are Marking Time

Little New Demand Experienced For Standard Grades of Paper—Fine Paper Manufacturers and Merchants Conducting Co-operative Campaign For Coming Year—Wrapping Paper Dealers Seeking to Dispose of Hold Over Stocks.

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., December 15, 1930—Continued clearing of stocks on hand is the dominating factor in the Philadelphia industry. There is little buying from the manufacturers as the last month of the year is normally a period of marking time in so far as mill business is concerned and with dealers fairly well supplied with stocks accumulated throughout the year little new demand for standard grades is noted. There has been growing distribution of all lines of papers, particularly for fancy wraps, boxes, corrugated products, tissues and glassine of Yuletide designs.

There is greater activity among paper merchants in the fine paper group for such lines as announcements, engraving papers, bonds, and writing papers of the better class to replenish the sold out holiday gift packets that are popular just now. There is a concerted activity among mill men and distributors, as well as representatives in the Quaker City trade, to campaign in an intensive way on mill brands with a view to creating a market for the coming year and to build up trade for both manufacturers and paper merchants in this territory. These drives are under co-operative campaigns of mills working directly with the paper houses through direct mail contact and by other means of personal contact with the printing, direct mail and advertising industries.

Dealers in the wrapping paper division are seeking to dispose of hold over stocks. The hand to mouth demand for urgent shipments denotes that supplies in consumers hands are low and the more frequent shipments of all lines of wrapping paper and other grades of this type aids in clearing out warehouses to make room for fresh goods after the inventory season discloses the needs for the coming year. Dealers believe that there will be a firmer bag situation with the new year as the trade is more inclined to co-operate with the large producers in their efforts to stabilize this branch of the industry as well as the wrapping paper division.

Coarse Paper Stabilization Drive Continued

Further details of the program adopted by the Wrapping Paper Division of the Philadelphia Paper Trade Association, following its eventful meeting on November 21, have been announced by the organization. There will be continued work by the original committee, which has adopted a program called "The Two Years Plan"—the purpose of which is, first to analyze the market condition regarding the distribution of wrapping paper in the Philadelphia territory, and secondly, to take such steps as are necessary to stabilize the market. In the first step along the way of stabilization is the permanent compilation of statistics on sale of kraft wrapping paper. With the first day of December there began a recording by practically all the paper houses in the Philadelphia territory of sales of kraft by individual firms who will submit their records to a central clearing bureau, which will compile a composite report of the tonnage, prices sold, etc., on a basis of four weeks period.

The association will meet and receive the first composite report on Wednesday, December 31, and at intervals of four weeks thereafter. The committee is working on details of the program to compile further sales statistics covering other grades of wrapping paper, such as bleached and unbleached sulphite wrapping, grease proof, glassine, tag board and allied lines. The other part of the program will include a compilation of operating expense ratios. Under this heading surveys will be made of the cost of doing business, under various subheadings, such as office expense, salesmen's compensations, warehouse operation and cartage.

Another important matter which will occupy the attention of the Philadelphia Paper Trade Association is that of credit interchange and this is scheduled for an early consideration. The trade as a whole is much enthused over the possibilities of this program and is extending fullest co-operation towards bringing about a more profitable and stabilized basis of conducting business in the new year and for the future. The statistical data, particularly, will be of great assistance to wrapping paper merchants in gauging market conditions, as well as the ability of the market to absorb the vast quantity of production in these grades available.

Wholesale Waste Merchants To Meet

With the December session of the Philadelphia Wholesale Waste Merchants Association, to be held Wednesday evening, there will be discussed plans for the annual banquet and the 26th anniversary celebration of the organization, which will be held either in January or February. Nomination of officers and the discussion of the present business situation will mark the session of the last quarter of 1930. There will be taken up the problem of stabilization of the paper stock industry. Thomas A. Kenny, president of the organization, will preside, while William J. McGarity, Jr., will report on the business of the last quarter. John Costello, who conducts his own business at 219 Chestnut street, will join the organization. Willard Heisley & Co., a newly organized concern, will also become associated with the organization.

Willard Heisley & Co. Opens Converting Plant

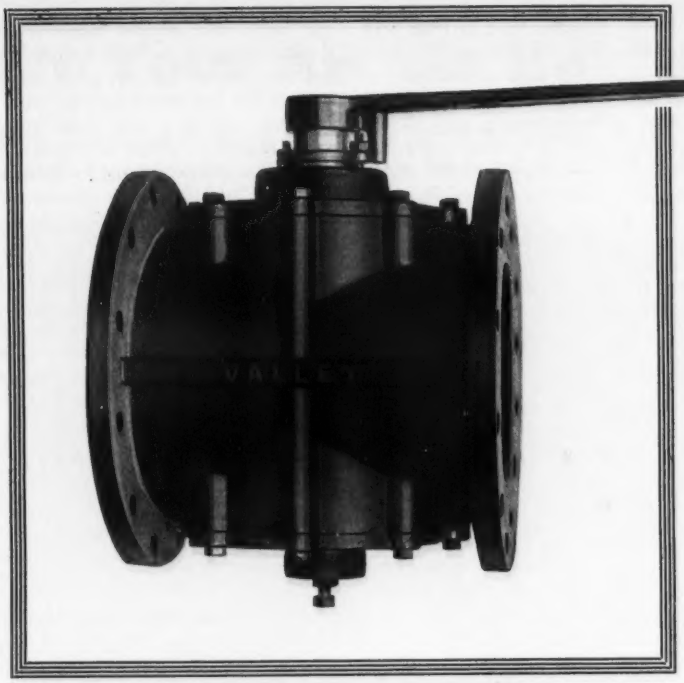
Willard Heisley & Co., a newly organized firm which will devote its business to the conversion of rags into wiping cloths, has taken possession of the four story structure at Church and Second streets where there is being installed a plant and equipment for the manufacture of wiping rags. Willard Heisley, head of the firm, is an old associate of the rag and paper stock industry and for many years was affiliated with Daniel I. Murphy & Co.

Hagy Bros. In Receivers Sale

Hagy Brothers, who for more than a score of years have been located at 19th street and Washington Avenue, were involved in bankruptcy sale by authority of receivers last Wednesday when the plant was sold by auction. The firm's assets of stock and equipment were liquidated under the hammer. The firm dealt in waste and rags and was well equipped with modern machinery for handling these.

Paper Firms in Centenarian Celebration

Among the 102 firms with a record of more than a century of history, consecutively engaged in the lines of trade in which they are at the present time, who were honored at the annual celebration and banquet extended by the Philadelphia Chamber of Commerce on December 10 at the Bellevue Stratford Hotel, were several paper concerns. With a representative gathering honored by the presence of Mayor Harry A. Mackey, and with Samuel Insull of Chicago the main speaker, the paper men who now control these local houses were given appropriate tribute for the part their companies played in the foundation of these enterprises in America and the continued association which they have held down through the years. Those who were present were Grellett Collins, Dill & Collins Company, founded in 1690; Shryock Brothers, in



IMPROVED

THE new No. 3 Valley Plug Valve offers improvements in design which mean easier and more positive control of your stock lines.

Among these improvements are (1) easier operation, (2) elimination of friction, (3) adjustable plug, (4) seasoned castings.

The seasoned castings in Valley Valves make a tighter valve and eliminate any tendency of warping. By centering the plug, friction has been practically eliminated. Closer limits can be attained in machining. The plug can be raised or lowered in the valve housing permitting adjustment according to pressure on the plug.

OTHER
VALLEY VALVES

2 and 3 Way Valves
Stock Gate Valves
Beater Dump Valves
Beater Washing Valves
Beater Hydrant Valves
Special Valves

Special Valley Valves can be furnished in two and three way types, full area, all iron, all bronze or worm gear operated.

Standard valves—having cast iron body and bronze plug—are carried in stock.

Address your inquiry or order to the Valley Iron Works Co., Appleton, Wisconsin.

VALLEY

Equipment for Paper and Pulp Mills

New York Office: 350 Madison Ave.
Western Mfg. & Sales Div.: Smith & Valley Iron Works Co., Portland, Ore.
Canadian Representatives: Pulp & Paper Mill Accessories, Ltd., Montreal, Canada

1790, with S. S. Shryock, Jr. and Owen Shryock representing the present lineage; J. Gibson McIlvain, extending back to 1798, with President J. Gibson McIlvain, representing the firm, and the McDowell Paper Mills with a history as far back as 1827, represented by Charles McDowell, present owner of the business and direct descendent of the founder. Mr. McDowell was accompanied by J. M. Chestnut, purchasing agent for his company and its office manager; Charles Eisenlohr, retired capitalist; and President W. Norman Morris, of the Manufacturers Club of Philadelphia, who were his guests. The Dill and Collins Company is directly descended from the first paper mill founded in America, known as the David Rittenhouse Mill, which operated here in the Colonial days. Shryock Brothers are directly in the lineage of the ownership of the first paper mills in America devoted to the manufacture of paper board. The McIlvain Company is among the first in the production of lumber and now owns the paper board mills under its control in Downingtown, Pa., which were acquired a few years ago. The McDowell Mills were among the leaders in the country in the manufacture of wrapping paper of finer quality and then branched out into various specialties as the century milestone was reached now making glassine and grease proof products and continuing its old lines of fine wrapping papers.

American Writing Paper Increases Bond Sales

The Philadelphia representatives of the American Writing Paper Company, who handle the Acceptance bonds of the Eagle A. lines, have been enjoying an increased market for these papers since the campaign started by the A. W. P. has stimulated demand. The returns on the direct mail drive on these bonds all over the country were shown to be from 12 to 14 per cent up until the first of the month. Those dealers in the Philadelphia territory taking in the eastern seaboard as far as Florida who enjoyed a livelier demand for the Acceptance bonds were the Garrett Buchanan Company, J. R. Howarth Paper Company, Inc., and the Paper Merchants Inc., local distributors. The drive will continue until mid January.

Schuylkill Paper Co. Adds Colored Linings

Colors have been added to the specialties in linings of the Schuylkill Paper Company, 215 South 5th street, there having been featured in the Schuylkill registered trade mark under the new additions three stock shades in Turquoise, Bombay and Seafoam. These are augmented by a number of colors that can be had in quantity orders of the firm's own make of Schuylkill linings of end sheets for bookbindings and publishers upon request. The Schuylkill linings have been made in white for some time.

A. M. Collins Mfg. Co. Innovations

Having discontinued the production of the Librarian cover papers in light weight grades, the A. M. Collins Manufacturing Company, with executive offices at 1518 Walnut street, and plant at Third street and Columbia Avenue, have also effected innovations in the matter of colors in these and added new grades of Parchmentone book. The Librarian cover papers will now be made in the latest colors of chestnut, jade, mandarin and turquoise instead of the former shades of green, brown and olive and will be produced only in heavy weights. The new additions to Parchmentone book papers of the A. M. Collins Company are white, peach, blue, green and buff and are in two lines. The papers are of the coated book style with high finish.

Cellophane Now In Rolls For Printing Conversion

While the sheeted cellophane has been the most practical for printing purposes in the past there has been developed a new device in printing equipment which enables the sale of the DuPont cellophane in rolls for conversion into wraps or other products where continuous printing methods may now be used. The DuPont cellophane is available now in these rolls so that they are readily applied to wrap manufacturing equipment and other printing devices where they are printed continuously in series from the entire roll without having to sheet before inserting in the machines. Previous to the perfection of the rolled cellophane for consecutive printed matter it was not possible to convert the cellophane into wraps except by the sheeting method. There are now several types of presses that can be used with the latest devices for cellophane printing and conversion of products with imprints, including bags with combination paper stocks or the sacks and plain wraps as announced by the Philadelphia offices of the DuPont Cellophane Company in the Liberty Title and Trust Company Building, under management of V. Clark.

Hampden Glazed Paper's Latest

Latest and most modern designs of box makers cover papers have been added to the offerings for the New Year of the Hampden Glazed Paper and Card Company through its Philadelphia manager, J. A. Stuckey, with offices in the Bourse Building. The new lines that are in the 1931 designs of the company are of the Sunfast grades in Bas-Relief, Sunfast-Lustre and in the Velvet prints. These box covers are sun proof and are made in the up-to-date motifs. Samples are now ready for the trade.

W. C. Hamilton & Sons New Sample Book

W. C. Hamilton & Sons, with fine paper mills located at Miquon, near Philadelphia, have issued a new sample book of the Cloudweave latest additions to these grades. The new line is a deckle edge sheet in white and colors of four shades and antique finish. The samples now are being sent to the trade and to consumers.

Addition To Andrews Paper House

The extensions in the warehousing facilities of the Andrews Paper House Division of S. Walter Inc., at York, Pa., consisted in the addition to the present quarters of a warehouse adjoining the offices and sales rooms and former warehouse along the railroad tracks of the Northern Central Division. The new warehouse is 50 by 125 and provides for the extension of paper stock in the York territory and the stocking facilities needed to take care of advancing business. Through a misunderstanding it was stated in these columns that the additional warehouse was made to the Lehigh Valley Paper House Division of S. Walter Inc., located at Allentown, Pa.

1931 Gift and Art Shows

Many products of paper in both fancy and practical gift wares will be shown in the 1931 Gift and Art Shows which are now announced by the National Gift and Art Association with headquarters located in the Drexel Building. The first of the 1931 Gift and Art Shows will be staged in New York City at the Pennsylvania Hotel, from February 23 to 27. The Philadelphia National Gift and Art Show will for the tenth consecutive year be held at the Adelphia Hotel from March 9 to 13. The mid-west territory will hold its National Gift and Art Show at the Hotel Stevens, Chicago, February 2 to 7. These annual gift and art shows are held for the benefit of the manufacturers, importers, distributors and jobbing dealers in fancy and useful gift art products, including many converted paper products.

Get Patent on Paper Coating

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, December 15, 1930.—Following a wait of nearly three years, Donald B. Bradner and Charles H. Milligan, both of Hamilton, have been granted a patent for a paper-coating composition.

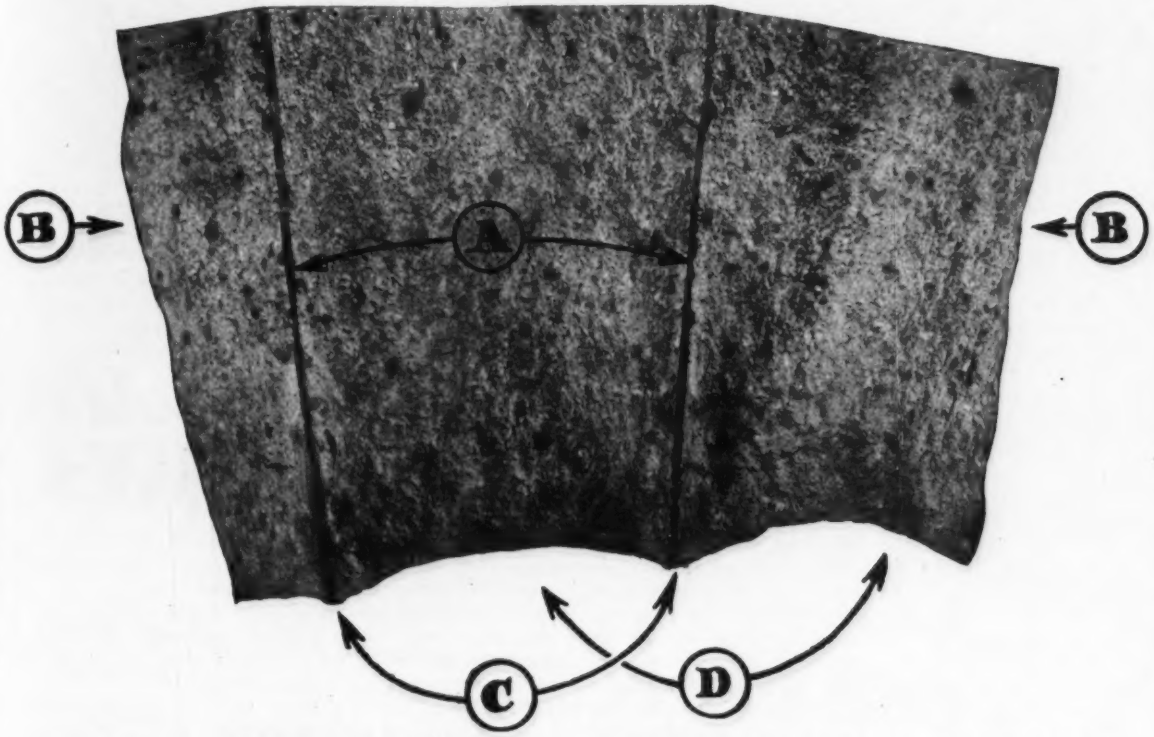
The men filed their application December 31, 1927. Twenty-two claims for new ideas were allowed.

The patent has been assigned to the Champion Coated Paper Company at Hamilton and promises to revolutionize a certain feature of coated paper manufacture. The company is preparing to re-equip its machines with the new appliances at an estimated cost of $1,000,000 or more.

Officially, the invention is described as follows:—"Process of making paper coating compositions which comprises admixing chlorinated protein adhesive and mineral pigment."

How Are Your Arches Holding Up?

Compare the next ARCH that falls or is torn out, with section illustrated below—*this ARCH was laid in KROMEPATCH.*



A Thin even KROMEPATCH joints bond brick into a monolithic structure. Note absence of crumbling, fluxing, bubbling and squeezing out of KROMEPATCH.

B In tearing out this section, the brick broke while KROMEPATCH joints remained intact. The joints are stronger than the brick.

C KROMEPATCH protects brick by resisting destructive elements, preventing penetration at joints. Note how joints project, proving conclusively that KROMEPATCH is more resistant to abrasion and destruction than brick themselves.

D Brick wear back in center (concave) while strong KROMEPATCH joints project, giving protection where it is most needed and thus increasing service life of arch.

REMEMBER:—Joint failure is caused by either crumbling or melting of bonding material.

Crumbling joints (material that lacks bond) allow heat to penetrate, exposing corners of brick which crack and fall out. This action repeats itself and soon joints are wide open and you need a new arch.

Joints made of clay base cements (lacking refractoriness) soften at low temperatures and flux sides of brick. Bonding material and fluxed brick bubbles from joint allowing heat to penetrate. Result—joints deeply cut out and short arch life.

KROMEPATCH Cement is primarily chrome ore—does not crumble, squeeze out or flux brick. Use it and avoid short ARCH and refractory lining life.

(KROMEPATCH does prolong the service life of furnace linings.)

"Distributors in Principal Cities"

E. J. LAVINO AND COMPANY
REFRACTORIES DIVISION
CHROME, MAGNESITE AND SILICA REFRACTORIES
BULLITT BUILDING PHILADELPHIA

Pioneers in Chrome Refractories

Efforts Made To Stabilize News Print Industry

Tendency Is to Close Higher Cost Mills and to Concentrate Production On More Economical Units—International Paper Co. Recommends Customers to Purchase Their Requirements Exclusively From North American Manufacturers.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL Que., December 15, 1930.—No further news is forthcoming here regarding the proposed merger of leading news print companies, but meanwhile the inevitable results of over production are beginning to manifest themselves in the closing of higher cost mills and the concentration of production to the more economical units. Thus in Ontario the Abitibi Company has now closed its mill at Sturgeon Falls, two other mills of the company—those at Espanola and Sault St. Marie having been closed for some time. In Quebec the Canada Power and Paper Company has closed down its St. Maurice mill, which has a capacity of 263 tons of news print and 25 tons of board and wrapper per day. Other mills, it is expected, will be closed. Naturally rumor is proving disquieting to many localities, and various companies are busy issuing denials. The latest denial is that issued by the St. Lawrence Paper Mills. It is stated by the local manager at Three Rivers that the rumor of the contemplated closing of the plant is without foundation; that the mill is at present operating at 50 percent of capacity; and that it will continue to work on a five-day basis.

During the progress of the negotiations for a large merger of news print interests, the suggestion has been made that Price Bros. & Co. may be induced to join. An emphatic denial of any such intention has now been given by Colonel Price, the president of the company. In a newspaper interview in Montreal he has just made this statement: "We will not join a merger or consolidation. We re-affirm, definitely and emphatically, our determination to maintain the independence of position which this company has occupied for more than 100 years. We offer a high quality news print from three modern mills with a daily capacity of over 1,000 tons. We extend to all the same terms of purchase and our price will be as low as the lowest contract price of any important North American producer."

News Print Price Situation

While the International Paper Company and the Canada Power and Paper Company have both announced that there will be no change in the prevailing price of news print as applied to 1931 contracts, the action of other companies is not so definite. Thus the St. Lawrence Paper Company has stated that competitive conditions and announcements have been made to their customers, while Price Brothers & Co., state that in 1931 they will not depart from their policy, which is "to quote customers market price based on larger producers."

The International Paper Company has addressed an interesting letter to its customers which reads in part as follows:

"In 1911, twenty years ago, news print manufactured in Canada was granted free entry into the United States. The proposed Reciprocity Law with Canada was agreed to by the United States but repudiated by Canada, with the result that the law became inoperative except as to one section—which provided for the free entry of Canadian news print paper. In 1913 the Underwood Tariff Law went a step further and placed news print generally on the free list.

"In the year 1910 the United States consumed about 1,250,000 tons of news print, 1,225,000 tons of which was made in the United States and 25,000 tons in Canada.

"In 1930 the United States will use about 3,500,000 tons of news print and will import about 63 per cent or 2,200,000 tons of it. This will come chiefly from Canada, supplemented by Newfoundland and to some extent by Europe.

"The United States news print industry, which had been built up, beginning in 1870, when pulpwood became the raw material generally used, has for some time been on the wane. Cheaper wood and more abundant water power were available on the opposite side of the Canadian border, and henceforth the publishers of the United States look to Canada for the major portions of their news print supply.

"It is interesting that many European countries now have in effect tariffs against news print. Germany, for instance, has a tariff of about $12 a ton. Italy's tariff is still higher, though England and, generally speaking, South America, are still on a free trade basis. Other countries, such as France and Austria, also have tariffs or impose conditions which effectively prevent the importation of news print.

"Efforts are being made in the United States and Canada to relieve existing unemployment. As a part of the programme we suggest that purchases of news print might be limited to the product of North American mills, which, no matter where located, represent in many instances the investment of capital from the United States.

"It is not to be denied that mistakes in the relations between paper manufacturers and publishers have occurred during past years. We are confident, however, that publishers are now seriously considering whether a very bearish attitude as to news print prices might result in harm, not only to the paper manufacturers, but also to the publishing industry, both in the immediate future and in the years ahead.

"Curtailed production in North American news print mills means increased costs and increased unemployment. A reduction in the price of news print at a time when North American mills have much idle capacity may involve serious financial hardships for many important producers."

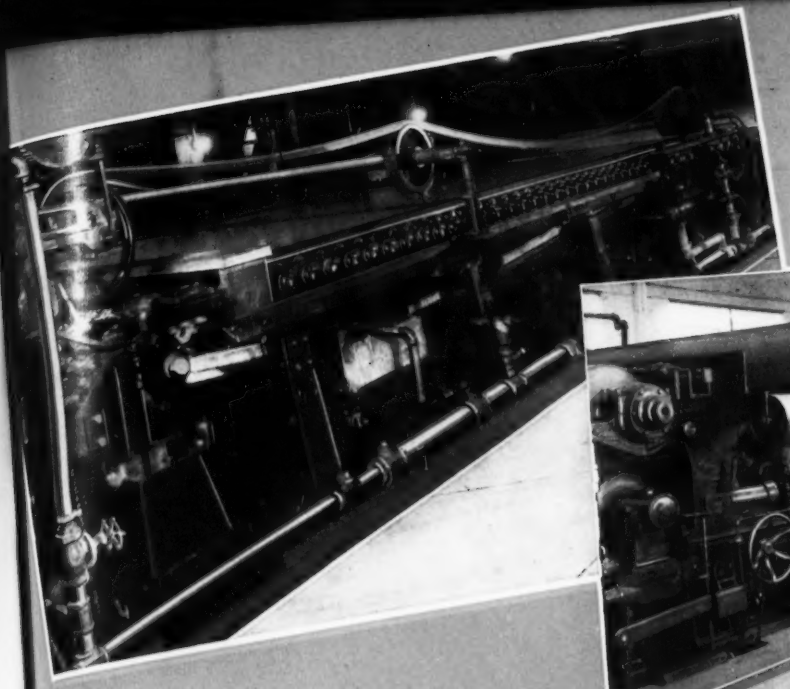
Developments on Pacific Coast

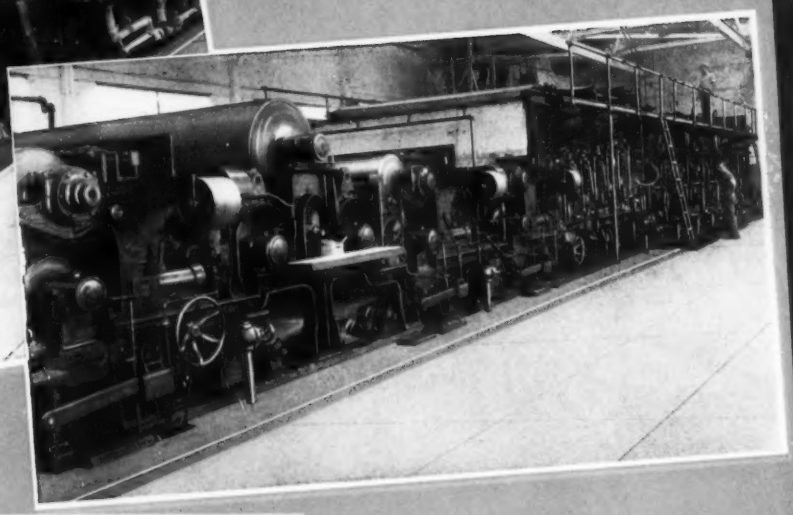
From Vancouver it is announced that the Powell River Company's seventh paper making machine is now making trial runs and early in January will be on a daily basis of production. The machine brings the capacity of the plant up to 650 tons per day. Paper is now selling on the Pacific Coast at $58 per ton, and there is not likely to be any change. This price was established two months ago by Powell River Company and was promptly met by Crown-Zellerbach Corporation, the other important news print producer on the coast.

Good progress is being made in the company's power development. Water is now dropping over the spillway of the Lois River dam, but power will not be used from that source until the season is further advanced, as several engineering details in connection with the $8,000,000 expansion scheme have yet to be completed.

The 5,800-foot tunnel between Lois River and Stillwater has been drilled, and it is now being lined with concrete. The steel penstocks, surge tank and power house are well under way, and the transmission lines have been ready for some time to convey the energy from the Stillwater power plant to Powell River, where all the paper making units are grouped.

Three hundred men will be added to the operating staff as a result of coming into production of the new machine, although this will not be the extent of the net increase in company em-





ON CYLINDER or FOURDRINIER

Day by day roller bearings are demonstrating their worth on paper machines—cylinder and fourdrinier.

Only a few days ago we received the encouraging information from the executive head of a nearby mill that a **$3.47** per ton reduction in operating costs had been obtained, **DUE IN LARGE PART** to the mounting of their wet end on roller bearings.

THE BLACK-CLAWSON CO.
HAMILTON, OHIO

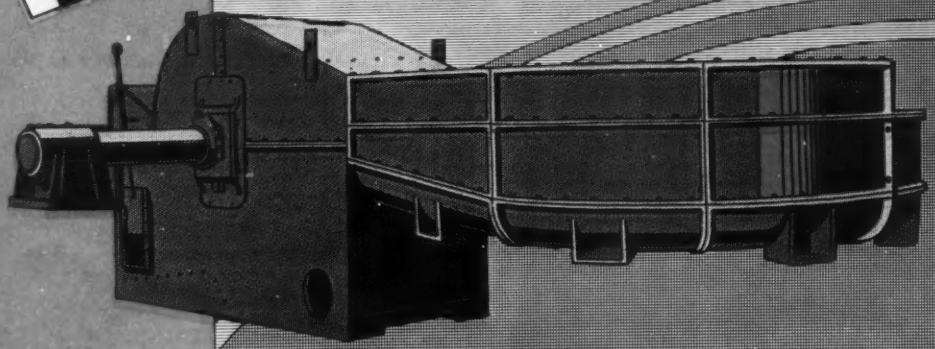
Owners of SHARTLE BROS. MACHINE CO.
Middletown, Ohio

Export Office, 15 Park Row, New York City

It pays to mount cylinder molds, felt and couch rolls, squeeze and press rolls on rollers. It pays to mount fourdrinier table rolls in the same manner. And it pays to see that all such rolls are in dynamic balance before mounting.

BLACK-CLAWSON

THE GREATEST TIME AND LABOR SAVER IN ALL PAPER MILL HISTORY



BREAKERS

Nothing less than the Shartle Breaker — or Continuous Beating System. Originated at Shartles. Evolved up to its present state of perfection by Shartles.

Provides the only successful way to use rough stock direct from the city dumps, all foreign matter, coarse and fine, removed automatically.

The only device so far developed husky enough to handle frozen laps successfully and fast.

Is the best device ever built for handling broke. Extensively used as a broke beater in largest kraft and news print mills.

No competitive breaker has ever permanently replaced a Shartle, but Shartle breakers have replaced one or more of every other kind.

Have us show you how a Shartle Breaker could pay for itself in your mill in a matter of months only.

SHARTLE BROTHERS MACHINE CO.
MIDDLETOWN, OHIO
DIVISION OF THE BLACK-CLAWSON CO.
HAMILTON, OHIO
EXPORT OFFICE—79 PARK ROW—NEW YORK CITY

ployees. Several men now engaged in construction will be transferred to the operating end.

The International Paper Company, it is further stated, has withdrawn its entire engineering staff from British Columbia, which is taken to indicate that it does not intend to proceed further with expansion plans.

Official denial has been given of the report that International is negotiating for acquisition of the Crown Zellerbach Corporation's mills on the Pacific coast, but there is a strong suggestion that the latter company will figure shortly in a consolidation of some kind.

Pulpwood Industry Facing Ruin

That the pulpwood and lumber industry in the colonization areas of northwestern Quebec are facing ruin as the result of Russian competition in the United States markets is the claim made by Hector Authier, member of the Provincial Legislature for the Abitibi district. He has therefore issued an appeal to the Dominion Board of Railway Commissioners to lower the railway freight rates on pulpwood and lumber to Eastern Canada and the United States. In his statement he says:

"As you know, there is at present a crisis in the paper industry; there is also importation of Russian pulpwood, and, consequently, the price of pulpwood at the American and southern Canadian mills has been cut about $5 per cord. The purchasing agents or jobbers for the various mills have stopped buying in any district, and our settlers are now facing starvation for the next winter. Prices paid last winter for peeled or rossed pulpwood ranged from $8 to $10 per cord. They cannot be cut down, as they just provide bare living for the settlers engaged in the operations of cutting, peeling, hauling and loading pulpwood.

Will These Settlements Be Maintained

"The question is this: Will these settlements be maintained or die out?

"To maintain them there must be a possible sale for their pulpwood at a minimum price.

"That sale is not possible at present unless there is a cut in the freight rates, from the forest to the paper mills. The mills can get pulpwood delivered in their yards at prices ranging from $14 to $20 per cord. The wood producer cannot produce it for less than $8.50 to $10 per cord. Therefore, transportation charges have to be lowered to fit in between. The cost of transportation for a cord of pulpwood from Amos to La Tuque, Donnacona, Shawinigan of Grand'Mere should be $4; to Crabtree, Cornwall, Hawkesbury, Three Rivers, $5; to Thorold, Merritton and Niagara Falls, $6 to $7; to New York-Watertown district, not more than $9.

"I am informed that the Russians have contracted for the delivery of over 1,000,000 cords of pulpwood to the American mills during next summer. Therefore it is our last chance to sell some pulpwood to the United States this winter. Please do all you can to help us in this very serious situation."

New Insulation Board Mill

Shortly after the New Year, the Sidney Roofing and Paper Mill will construct at Vancouver an insulation board mill to cost around $250,000. The site has been prepared and the machinery ordered.

Fourth Machine at Dalhousie

A despatch from Dalhousie, N. B., states that a fourth news print machine is now being installed in the Dalhousie mill of the New Brunswick International Paper Company, which will bring the total daily production up to 575 tons. This installation means the realization of the prediction made during the early days of construction that this news print mill would eventually operate four machines, and, consequently, make the plant the third largest of the International's chain in Canada. Between 700 and 800 employees are at present on the mill's payroll, and it is expected 75 more will be added when the plant is operated at capacity.

Drop Cigarette Paper Investigation

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 17, 1930—At the request of the Tobacco Merchants Association of the United States it is probable that the United States Tariff Commission will drop its investigation into the tariff duty on cigarette papers and cigarette books. Application to this effect was made last week to the Commission by Junius Parker, and attorney representing the association at a hearing called by the Commission to take testimony in the case. Carl E. Whitney, of Wise, Whitney & Parker, representing the American Paper and Pulp Association acquiesed in the request of Mr. Parker.

"I represent the Tobacco Merchants' Association of the United States," said Mr. Parker, "a trade organization of the tobacco industry which includes in its membership most, if not all, of the cigarette manufacturers of the country.

"While the recent tariff bill was pending before Congress, this association, on behalf of the cigarette industry, submitted to the Senate Finance Committee a memorial asking that cigarette paper, whether intended for the machine manufacture of cigarettes or intended to be sold in the form of booklets, be placed on the free list, on the ground that there was no existent American cigarette paper industry to protect, and so, from the point of view of protection, the existing 60 per cent ad valorem duty was unnecessary, and that there was no justification for requiring the cigarette industry to pay a revenue duty on one of its items of raw material on top of the very high war taxes that were still levied on cigarettes. The Senate passed an amendment to the House Bill placing cigarette paper and cigarette books on the free list, and this without dissent.

"However, as the tariff bill was agreed to by the conferees, the Senate amendment relating to cigarette paper and cigarette books was eliminated, and the House provision retaining the old duty of 60 per cent ad valorem remained unchanged in the present law.

"Congress was to adjourn very soon after the enactment of the present tariff law, and the Tobacco Merchants' Association, having its principal officers in New York City and therefore being a constituent of Senator Copeland, of New York, besought Senator Copeland to introduce a resolution directing the Tariff Commission to make the investigation which it is now about to make. Frankly, this request was made without any careful analysis of that part of the statute that sets out the duties of the Commission.

"The fact that there is not a substantial commercial production in this country of cigarette paper obviously makes it impossible to produce a comparison between costs abroad and here. This comparison of foreign and domestic costs seems to be the first step to be taken by one who seeks action by the Commission, and being unable to take this step, it seems that we cannot ask the Commission to make any recommendation to the President for a change in the rate of duty. So, unless there is an effort made to induce the Commission to recommend an increase in the rates, we have concluded that we will not at present ask action by the Commission.

"I am authorized to state that under these circumstances it is agreeable to Senator Copeland that the Commission do not at present proceed with any investigation under the resolution introduced by him—unless, indeed, it is otherwise induced to make an investigation."

The Commission has taken the request under advisement.

Paper Market Weak at Helsingfors

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., Dec. 17, 1930.—A cablegram from Commercial Attache Watson at Helsingfors reports the paper market dull with weak prices. No improvement has taken place as yet in the chemical pulp market, and the ground wood market also continues listless with pulpboard prices showing a marked downward tendency.

Rag Content Research Laboratory

In the research laboratory in the new State building in Springfield Mass., the rag content paper division of the Writing Paper Manufacturers' association has an agency that exerts an international influence says the *Springfield Republican*. The laboratory was established three years ago for the purpose of aiding the mills to produce a higher quality of rag content paper and also to bring forth new and trustworthy evidence as regards its superiority for particular uses. It is in close touch with other research laboratories and various interests concerned with the quality and permanence of paper, about one-third of its correspondence being with foreign countries, and thus its operations are the means of diffusing widely the facts deduced respecting differences between the various types and grades of paper in use.

Public attention was drawn recently to the work that is being done by the rag content paper division through the Direct Mail rating the division's publicity campaign carried on during the last three years as among the most fruitful in results among similar programs in this country. This campaign, which is still in progress, does not inveigh in any respect against any other class of paper; in fact, it recognizes the enormous utility of wood pulp papers for many uses. It does promote better knowledge concerning the results derived from various materials and processes in paper making. Thus it aims to arrest the trend that was alleged to have swung too far in the direction of cheaper papers and at the same time exert a positive influence for quality in certain lines of consumption.

Wide Distribution

The printed matter goes to a list of 55,000, including paper mills, paper merchants and salesmen, printers, banks, insurance companies, department stores, hotels and other large consumers. In various ways the circulars, which exemplify the worth of good printing, impress the idea of quality and also gives points on the use of printing and engraving, envelope styles and other factors essential to the highest measure of benefit from rag paper. The appeal represented by a combination of all such factors, when harmoniously related, is brought forcibly to attention.

From the New England viewpoint this campaign, having the support of the Writing Paper Manufacturers' association, is of particular interest because the manufacture of rag paper in America had its birth in this section. Here, as in foreign lands, high quality rag paper, strictly handmade in our earliest mills, commanded admiration and respect. When science opened a vast field for production of paper from wood pulp attention was diverted more and more to the use of a substitute that in a surprising degree imitated the characteristics of rag paper, while at the same time addressing itself to mass production for the news print, catalog and book fields. The World war, with its tremendous emphasis on speed and volume, gave this trend greater momentum. On this as in other fields of manufacture it laid a strong stress on quantity as a primary objective.

Get Back to Quality

Leading paper manufacturers discerned a definite lowering of standards that seemed to express a subtle influence of the post-war period. After three years' consistent endeavor the officials of the rag content paper division can see that the pendulum is swinging back and the quality standards are coming to the front again as opposed to extreme emphasis on machine ingenuity and efficiency. Rag paper is more appreciated for nice uses and occasions. This tendency is asserting itself, they say, not only in respect to fine papers but other kinds of products that bespeak beauty and refinement. The very force of a campaign conducted continuously over a period of years in behalf of one quality product may be regarded as an effective champion of quality in other things as well. Its sponsors think they have proved that the American people is quality conscious.

After the rag paper campaign had been well launched, sales of all-rag and other rag content paper began to mount. At the close of January, 1928, orders had risen to normal. One year later they were 10 per cent above normal. In March, 1929, they rose still higher; in January, 1930, they stood at virtually the same level as in January, 1928. During the depression that has affected many lines of industry the sales of rag paper are said to have shown better resistance than any other comparable product. According to the lastest statistics 25,000 tons of 100 per cent rag paper are annually being sold in this country, along with 125,000 tons of paper ranging between 25 and 100 per cent rag.

Process Important

One lesson that has been instilled more clearly than ever is that the process used in paper making is important, when it comes to quality and satisfaction in the product, and that a wood-pulp paper properly made may even excel a rag-content paper that is poorly made. Another point is that the scientific spirit that has wrought such amazing results in the wood-pulp paper field is being applied to the making of more beautiful and lasting rag papers—papers that will hold their color and durability better with the passage of time. Paper making processes are closely correlated, and the capacities of mill superintendent and chief chemist are being combined in the same person in some instances. As a net result paper making as an art and science is being raised steadily to a higher level. It is claimed that the quality of rag paper has been improved 50 per cent in the last 10 years.

The Writing Paper Manufacturers association, having its offices at 95 State street, dates from 1819. Emmett H. Taylor is general counsel and also secretary-treasurer of the association. Its rag content paper division is balanced by a similar division for wood pulp paper. The research laboratory here is conducted especially in the interest of the first-named division, but it brings out, through comparative tests, many interesting points relative to other classes of paper. Dr. Jessie E. Minor has charge of the laboratory. She is chairman of the fibrous materials committee of the Technical association of the Pulp and Paper Industry and meets frequently with mill chemists for conference and discussions, and once a year presides at general open meetings for broader discussions.

Before assuming her present duties Dr. Minor, who got her Ph. D. degree from Bryn Mawr, was a teacher of chemistry and a chemist for several paper mills, including that of the Collins Manufacturing company in North Wilbraham.

While the local laboratory is applied for the benefit of the paper mills and their customers, a similar laboratory is maintained at the Institute of Paper Chemistry at Lawrence college, Appleton, Wis., for use in the training of paper makers. A laboratory of the Forstlung Hochschule at Eberswaldi, Berlin, Germany, combines the two functions. With these as well as the mill laboratories of England, France, Germany, Holland and Belgium the local laboratory is in constant communication.

Work of Laboratory

The laboratory's work has to do with fundamental research problems of the paper industry and with the testing of finished papers in order to arrive at exact knowledge of their quality and establish better understanding between the manufacturer and the buyer. Its projects originate with mill managements or in conferences with the chemists of the mills. A specific task recently undertaken in the laboratory is the testing of papers made in the last hundred years in different countries, to detect the relation between methods of making paper and its permanence. For this purpose samples of paper have been taken from books in the New York Public Library and from European libraries. These are now under test.

Many of the tests are to determine the effects of time on the wearing qualities and appearance of paper. Maintenance of the original color, strength and flexibility is largely dependent on skill in making, and it is found that papers made according to the latest

. . . Let us ask someone who uses the ONEIDA CHUCK

HERE'S WHAT THEY SAY
(names upon request)

"We are using quite a number of your patented Oneida Chucks on our super-calenders and re-winders and find them very satisfactory for the purpose. Will be glad to recommend them to any-body who cares to write us about them."

* * *

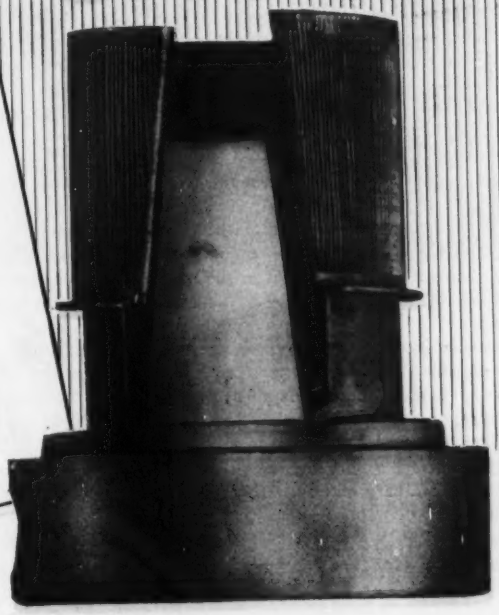
"We contend that the Oneida Chucks returned the original investment to us in four days' use."

* * *

"We are very much pleased with the idea and they work out very nicely."

* * *

"We think you have a mighty nice prop-osition and that every paper mill in the country, after they know what you have, will be more than pleased to try them out as the chucks we have, have paid for themselves already."



Paper Manufacturers and Converters alike are effecting substantial savings with the Oneida Chuck—a new roll collar designed for use with paper cores, or rolls without cores. Easy and simple to operate and furnished for all standard sizes of shafts and cores. Time, labor and core stocks are reduced. Its many advantages make the "Core Account" burden a thing of the past.
For full particulars write our office nearest you.

Note These Advantages:

Replaces heavy iron cores with non-returnable paper cores.
Stops stocking of cores in all sizes.
Does away with all expense for shipping and handling returnable cores.
Permits safe running down of roll to last thickness of paper.

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WALDRON

Paper Converting Machinery

formulas do not deteriorate so readily as did many of the oldtime products. The effects of heat, light, air impurities and moisture and of repeated folding and other rough usage are carefully investigated. In this connection the atmosphere and light conditions in different localities are studied in relation to the endurance of paper. One hour of the intense ultraviolet rays used in the laboratory is said to be equivalent in its effect to a month of Arizona sunlight. Papers are sent to the Panama Canal zone, Hawaii, the copper mines regions and various points in the tropics, and after being kept there a specified length of time are brought back and tested to determine the reactions. An electric oven of constant temperature is used in detecting the effect of heat upon various samples. They are burned to study the ash contents.

In many instances the paper is disintegrated into fiber before testing, thus reversing the process of manufacture. Chemical stains may be used, producing different reactions that will reveal under the microscope the contents of the paper. In one test a viscosity of cuperammonium solution is employed to determine the strength of fiber. Tubes containing samples in this solution are mounted on a wheel which revolves at the rate of two revolutions a minute for 16 hours to dissolve the fiber in the solution, after which the time required for each sample to flow out from a capillary tip in vertical position is observed and recorded, one in comparison with another.

Special apparatus is used to test the tensile strength, brittleness and folding strength of various papers. Samples are studied under the microscope and with the aid of chemicals to determine the nature of the fiber. Photographs made with the aid of the microscope for record purposes reveal to the naked eye the innumerable tendrils of rag paper that serve to bind all parts of the product together.

Samples subjected to comparative tests are weighed with exactness in utensils that are kept perfectly dry. The humidity of the atmosphere in the laboratory is always the same and the temperature is always under close control. Electric fans assist the humidifying equipment in keeping the air in circulation and at uniform humidity. The laboratory occupies two rooms. The outer room resembles an ordinary chemical laboratory in many respects, while the inner room contains much special apparatus applicable to its particular tasks.

Lake States Section TAPPI Meets

The monthly meeting of the Lakes States Section of TAPPI took place December 9, 1930 at the Menasha Hotel in Menasha, Wis. About seventy-five members attended this meeting and a lively discussion followed the presentation of the tree papers.

W. H. Anderson of the Westinghouse Electric Company gave a very interesting paper in which he discussed the various papers used by the electrical industry.

A. H. Thurer, Appleton Woolen Mills, spoke on paper and wet machine felts, while W. E. Buchanan, Appleton Wire Works, spoke on Fourdrinier wires.

A standing vote was taken on the feasibility of having the January meeting at Stevens Point, and it was decided that Menasha continue to be the meeting place of the section. Steps were also taken to try to get more men from the Fox River Valley to attend the meetings.

Due to the very incomplete mailing list of the section, it is impossible to reach the various men in the industry who would be interested in attending these meetings. The men the section is very anxious to have at these meetings are managers, superintendents, assistant superintendents. foremen, technical men, cost men, and engineers. It is not necessary that men belong to the section to attend meetings. The dues are only $1.00 per year, and all men wishing to get on the mailing list can do so by sending $1.00 to George Hrubecky, John Strange Paper Company, Menasha, Wis.

The next meeting will be held January 13, 1931, at Menasha.

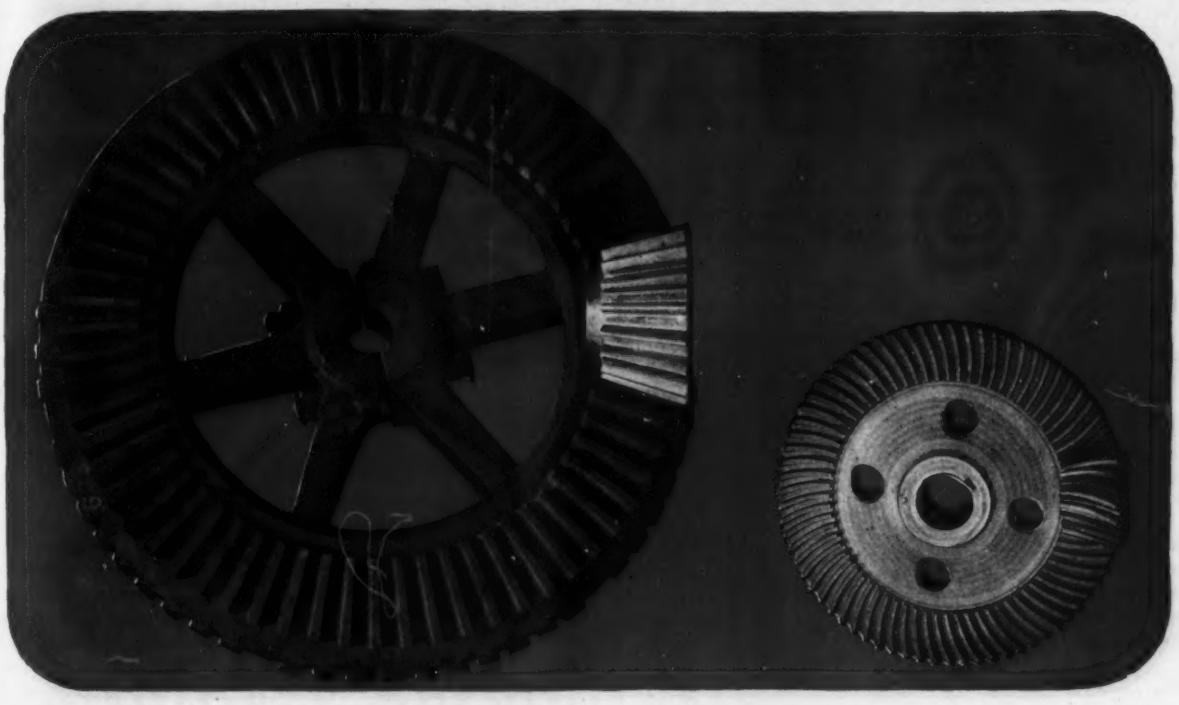
Abitibi Keeps Low Cost Mills Open

Practically all of its higher-cost mills, starting with the old Spanish River mills at Espanola, have now been closed by the Abitibi Power and Paper Company. The Espanola mill has been closed since May 16, 1930, the Sault Ste. Marie plant closed down November 6 last, and the Sturgeon Falls mill was closed down early in December. In each case the announcement was made that the close-down was on account of the decreased consumption of news print in the United States owing to business depression prevailing there. The net result is that the company is supplying the market from low-cost mills which have the reputation of being able to compete from the standpoint of economy and efficiency with any mills on the continent. The company, has, of course, to look after the overhead expenses in connection with those mills that have been shut down as these expenses run on whether the mill is closed or not. For example, power contracts are usually drawn in such a way that power is paid for whether used or not. As the Espanola mill was the first one closed down the company undertook to secure employment for as many of its old hands as possible and to see that no actual suffering from lack of food or clothing occurred. At Sault Ste. Marie and Sturgeon Falls employees had the advantage of a better situation in that they were employed at remunerative wages until nearly December while Espanola employees had to take whatever work could be found. It is obvious that other paper mills have lower production as a result of the same influences that caused the closing down of the higher-cost mills referred to, and that it becomes increasingly harder for such employees to be placed quickly. Relief was undertaken at Espanola which is peculiarily a company town with most of the residents dependent directly or indirectly upon the company. A committee of three representing the company, the employees and the church organizations in Espanola was formed with the object of investigating carefully every application for relief and making provision at the company's stores by charge accounts for absolute necessities in food and clothing. The Ontario Government provided some work on gravelling contracts, and this was of some assistance. The opening of the Abitibi Canyon power project by the company provided for a fair percentage of the unemployed, although not a few of the men were unsuited to that class of work. Both from the Espanola plant and that at Sault Ste. Marie, International Nickel Company, drew some workers. It is thought that when the news print demand resumes the Sault Ste. Marie mill will be the first to reopen.

Smart Paper Mill Damaged by Fire

TROY, N. Y., December 16, 1930.—Fire breaking out in the main beater room of the old Smart Paper Mill on Campbell Road caused damage estimated at $10,000 and for a time threatened to destroy the entire group of five mill buildings. The mill is one of the historic landmarks in Rensselaer county and was constructed over one hundred years ago. It is the only mill of its kind in this country turning out brown paper from rye straw and its product is shipped to countries in South American for wrapping cigars and cigarettes. The blaze was discovered by an employee who attends to the boilers every morning and the flames in the beater mill had gained considerable headway before the alarm was given.

Firemen from this city responded and the water supply in Wynantskill Creek was used in quenching the flames which were finally extinguished after a long fight. Tons of highly inflammable rye straw were stored in the warehouse adjoining the beater mill and the fight to keep the flames from spreading was a lively one. The origin of the fire is unknown but it was stated that insurance was carried. A considerable portion of new machinery recently installed was included in the loss. The mill resumed operations about a year ago under the direction of Leland G. Haner.



One Quarter the Size But the Same Power...

One's first impression of a Bagley & Sewall All Metal Spiral Bevel Gear Drive is its amazing compactness. It's hard to realize the amount of power packed in its snug casing... even when you see it quietly at work, spinning the monster rolls of a modern paper machine.

***Quiet* is the word—for coupled with its space-conserving trimness and its unusual power capacity is its smooth, noiseless, vibration-free performance. That means a lot in paper production—freedom from chatter and jump, from excessive breakage and undue wear on rolls and machine clothing.**

Precisely cut, perfectly matched, all metal gears, submerged in a full oil bath . . . more-than-adequate anti-friction bearings . . . sturdy, well-mannered stands that keep their feet out of the aisles . . . smoothly functioning clutches . . . a faculty for putting every ounce of power to most effective work . . . these are a few of the reasons for the steadily increasing acceptance of Bagley & Sewall Drives as standard equipment by mills that really care.

Four sizes, direct and compound types, for new or old machines of any size or speed . . . it will be worth your while to investigate their advantages.

The Bagley & Sewall Co.

Watertown, N. Y.

45

New York Trade Jottings

R. S. Kellogg, secretary of the News Print Service Bureau, and Mrs. Kellogg, have left New York for Wisconsin, where they will spend the Christmas holiday.

* * *

Harry L. Derby has been elected vice-president of the American Cyanamid Company. Mr. Derby is also president of the Kalbfleish Corporation's group of companies, which are all subsidiaries of the American Cyanamid Company.

* * *

Rocco Palmieri has joined the forces of Gaccione Bros. & Co., Inc., paper mill supply dealers, of 31 Peck Slip, New York. Mr. Palmieri is well known in the paper trade through his association with several leading paper stock houses.

* * *

The Willmann Paper Company, Inc., of 530 Canal street, New York has added Ticonderoga Text to its lines. Ticonderoga Text, made by the Ticonderoga Pulp and Paper Company, is a water marked sheet of laid antique, and comes in white and seven colors.

* * *

Henry Nias, president of the Lily-Tulip Cup corporation, New York, has notified stockholders that earnings after charges, taxes and preferred dividends, on the company's 183,000 shares of no-par common stock were above $3 a share for the eleven months ended December 1, last.

* * *

The Swedish Chamber of Commerce of the U. S. A., which includes in its membership many prominent figures in the pulp and paper industry, plans to move into new offices on the thirteenth floor of the Chrysler Building, Lexington Avenue and 42nd street, New York, on or about New Year.

* * *

Andy C. Costarino, of the Hicks-Costarino Company, Inc., Brooklyn, N. Y., was elected president of the New York Association of Dealers in Paper Mills' Supplies, Inc., at the annual meeting held in the La Capanna Restaurant, New York, last Thursday. Harris Goldman, manager of the New York office of the Leshner Corporation, was elected vice-president for the ensuing year, succeeding Mr. Costarino, while Walter H. Martens, of George W. Millar & Co., Inc., and Alfred J. Moran, of A. J. Moran & Co., Inc., were again elected respectively treasurer and secretary.

* * *

Acting on complaints received by the Merchants' Association, Philip Elting, Collector of the Port of New York, on Monday called a meeting of the customs committee on customs storage, labor and cartage in his offices at the Custom House to consider what action should be taken to remedy the alleged grievances. The complaints have reference to the present rate for storage, labor and cartage, which, it is claimed by shippers, are too high under the present conditions ruling in business, and it is suggested that they should be lowered as they were once before. The committee decided to ask the Merchants' Association to file with it copies of the complaints received, and when they are before them in detail they will take the matter up with local warehousemen to see if a suitable agreement can be arrived at of a mutually satisfactory nature. The committee will meet again as soon as it is in possession of the specific complaints.

Sweden, Finland and Norway To Cut Output

WASHINGTON, D. C., Dec 17. 1930.—Representatives of the ground wood producers in Sweden, Finland and Norway recently met in Oslo to discuss a further decrease of 5 per cent in their output according to a report from Commercial Attache Klath, at Stockholm. As there already exists an agreement to reduce the output for export by 33 per cent this would mean a total curtailment of 38 per cent in the output of this particular class of pulp. The new agreement would be effective for a period of five years beginning with 1931.

Lockport Felt Co. Makes Airplane Calls

CHILLICOTHE, Ohio, December 11, 1930—Swiftness of modern aviation transportation was demonstrated Thursday noon when a red and cream Lockheed monoplane roared over Chillicothe and landed on the Dimity field near the Bridge street bridge just 26 minutes after it left Watson Airport, Cincinnati.

The plane, a duplicate of the one that just made a transcontinental record for women, piloted by Miss Ruth Nichols, carried William H. Lee, treasurer and general manager of the Lockport Felt Company, of Neufane, N. Y., who dropped in for business with William H. Kettra, of the Mead Pulp and Paper Company.

The Lockport Felt Company, supplies Mead with papermakers' felt and the local concern is one of the oldest customers of the New York manufacturer. With Mr. Lee was his son Raymond, Jr., age 13, and his pilot is Allen Van DeMark.

The visit marks the first occasion locally where a business house used an airplane to make its business calls and also the first time that the famous Lockheed airplane has been seen in this city. Lockheeds are used also by Col. Charles Lindbergh, Miss Amelia Earhart and other famous pilots.

Mr. Lee's party left Lockjort, near Buffalo, N. Y., yesterday and flew to Indianapolis where a business call was made. Then they flew to St. Louis and made a second call. Before dark the big ship roared back over 315 miles from St. Louis to Cincinnati in 1 hour and 20 minutes. After the overnight stop in the River City the party arrived here at Chillicothe Thursday noon and left late in the afternoon for Buffalo.

On his arrival at the Mead, Mr. Lee had a surprise waiting for himself, for he had not seen the big expansion that has taken place there in the past few years. The felt man used to "make this territory" years ago.

J. W. Sutcliffe Addresses Paper Salesmen

The work of the Import Committee of the American Paper Industry in Europe was comprehensively discussed by John W. Sutcliffe, European field representative, at the regular weekly luncheon and meeting of the New York Division of the Salesmen's Association of the Paper Industry, held last Tuesday at George's Restaurant, 507 Lexington Avenue.

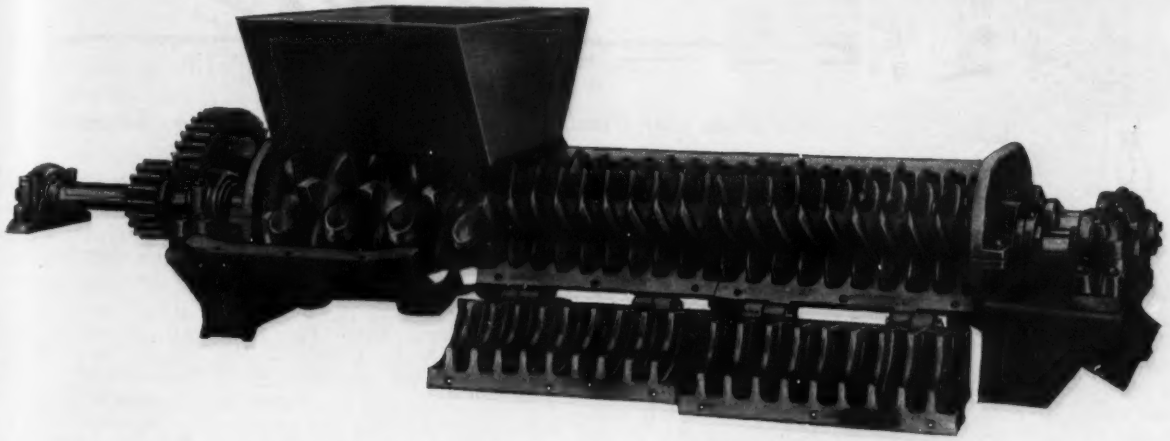
Mr. Sutcliffe said that his work consisted in travelling through practically all European countries and making contacts with the various United States consular commercial counsels, and showed how thoroughly tariff matters were checked up there. He also mentioned special investigations that he had made in Europe for large paper interests of this country. Economic conditions in the different European countries were also freely discussed by Mr. Sutcliffe.

During his address Mr. Sutcliffe spoke of his experience on a tour of the Middle West, from which he has just returned. He declared that he was greatly impressed by the optimism expressed by both manufacturers and distributors of paper in that section of the country, especially in Wisconsin, Michigan and Illinois, where he found prominent leaders supremely confident of the future of the paper industry.

Norwegian Mills Still on Reduced Schedules

WASHINGTON, D. C., Dec. 17, 1930.—Norwegian pulp and paper producers are still operating their mills on reduced schedules but prices have been somewhat strengthened following the ratification of the production agreement between European manufacturers of sulphite pulp and the recent consolidation buying and selling between six important Swedish pulp mills, according to word received by the Department of Commerce from Commercial Attache Lund at Oslo. Swedish sulphite manufacturers are again negotiating with a view to limiting production of that class of pulp. Any real improvement in the industry, however, the report states, cannot be expected without a revival of foreign markets.

BAKER IMPROVED KNEADER



Repulps Continuously...

No Time Lost . . .

Stock is fed in at one end and discharged at the other in less than five minutes . . .

Guaranteed to quickly pay for itself out of power, labor, time and material savings . . .

Requires little space . . .

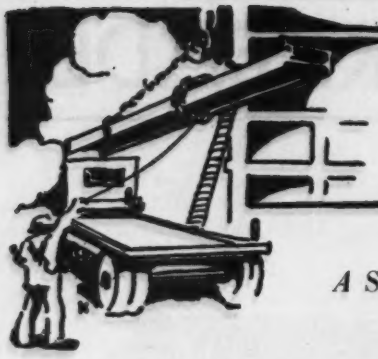
Cuts Horsepower In Two
Reduces Labor Cost Two-Thirds
Fibres Unimpaired
Less Sulphite
Better Quality at Less Cost
Operates Continuously
Less Time
Bakermade...from End to End

The Baker Corporation

Saratoga Springs, N. Y.

If it's BAKERMADE Eventually It Costs Less

A Half Century of Experience



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Childs, Md.—The Maryland Paper Board Company, recently organized to take over and operate the former local mill of the Marley Paper Manufacturing Company at Childs Station, near Elkton, Md., has awarded a general contract to C. T. Gardner, Childs, for alterations and improvements in the mill. Work will be placed under way at once. The company proposes to have the plant ready for production in all departments at an early date. Walter G. Leimbach, 7 St. Paul street, Baltimore, Md., is one of the heads of the company.

Springfield, Mo.—The Springfield Tablet Manufacturing Company, manufacturers of writing pads and other paper goods, is said to be planning the construction of a new addition to plant, to be located at Jefferson and Mill Streets. It will be a three-story and basement, reported to cost over $70,000, with equipment. It is understood that architectural plans will be placed in progress at an early date.

Jersey City, N. J.—The Stephen J. Leo Company, recently organized to manufacture paper boxes and containers, has taken title to the former plant of the James Leo Company, Golden and Varick streets. The property has been purchased from Senator Edward P. Stout and Judge Daniel T. O'Regan, receivers for the James Leo Company, which has been in financial difficulties for a number of months. The property consists of a five-story and basement factory, with two-story machine shop adjoining, on site, 100 x 250 feet, and was secured for a recorded consideration of $71,000. It is one of the oldest paper box manufacturing plants in this section. Purchasing company will make a number of improvements, it is understood, and will place production under way on a sizable basis at an early date.

Mobile, Ala.—The Champion Coated Paper Company, Hamilton, Ohio, is reported to be arranging preliminary details of a proposed new mill on site near Mobile, to be used for the manufacture of uncoated papers. The plant will consist of several buildings, with machine shop, boiler and power house, pumping station and other mechanical units, and is reported to cost over $1,500,000, with equipment. The machinery installation will include four large paper-making machines to produce sheets 232 inches wide. The plant is expected to give employment to more than 2000 men. No time for beginning the expansion program has as yet been announced.

Milwaukee, Wis.—The Milwaukee-Western Paper Company, 288 East Water street has awarded a general contract to Henry Dorff & Son, 2560 North Seventh street, for alterations and improvements in its two-story plant, 50 x 93 feet, at 354 Davidson street, to replace a recent fire loss. Estimated cost has not been announced. Work will be placed under way at once. Dick & Bauer, Inc., 208 Third Street, Milwaukee, are architects.

Green Bay, Wis.—The Northern Paper Mills, Day street, are said to be planning an expansion program, consisting of four new factory units. The initial structures will be a chemical laboratory and office building. Estimated cost has not been announced. It is understood that work will be placed under way at an early date. Plans for the expansion will be prepared under the direction of H. W. Gochnauer, plant engineer. Frank Timerman is manager.

Hollandsburg, Mich.—Ray N. Stapert, Kalamazoo, Mich., architect, is preparing plans for an addition to a three-story paper mill in this section, name of company being temporary withheld. Work will also include improvements in present unit, and is reported to cost over $50,000, with equipment. The project will mature early in the coming year.

Niagara Falls, N. Y.—The American Sales Book Company, Highland and Beech avenues is running on a curtailed schedule owing to a strike of a number of employes for a few months past. No immediate change in the situation is expected and the company is reported to be considering the removal of the plant to another location; there is no confirmation of that report, however. The mill is an interest of the S. J. Moore Corporation, Toronto, Ont., which also operates a similar plant at Elmira, N. Y.

Chicago, Ill.—The Jefferson Paper Bag Company, recently organized with a capital of $100,000, is reported to be making ready for early operations at its proposed new plant at 6525 South Laurel Avenue, where property has been leased. It is proposed to provide automatic machinery to develop a capacity of 2,000,000 paper bags per day, giving employment to about 60 persons for initial operations. The new organization is headed by M. N. Miller and A. T. Roberts.

Philadelphia, Pa.—Officials of Baeder, Adamson Company, Allegheny avenue and Richmond Street, manufacturer of sandpaper, etc., have organized a new company under Delaware laws, to be known as the Baeder Adamson Paper Mills, Inc., with capital of 10,000 shares of common stock, no par value. It is understood that the new company will succeed to the present organization, and that a general business development program will be carried out. The company was acquired a number of months ago by the Minnesota Mining and Manufacturing Company, Forest Street, St. Paul, Minn., and is now being operated as a unit of that organization.

Fitchburg, Mass.—Crocker, Burbank & Co., Westminster street, are said to be arranging for the early construction of a new power plant at local mill, recently announced, reported to cost about $40,000, with equipment. F. J. Sill, East Main street, Westboro, Mass., is engineer.

Detroit, Mich.—The Central Ohio Paper Company, Columbus, Ohio, has filed notice of company organization to operate in Michigan with a capital of $2,000,000. C. E. Munz, Coe Terminal Building, West Fort Street, Detroit, will be company representative.

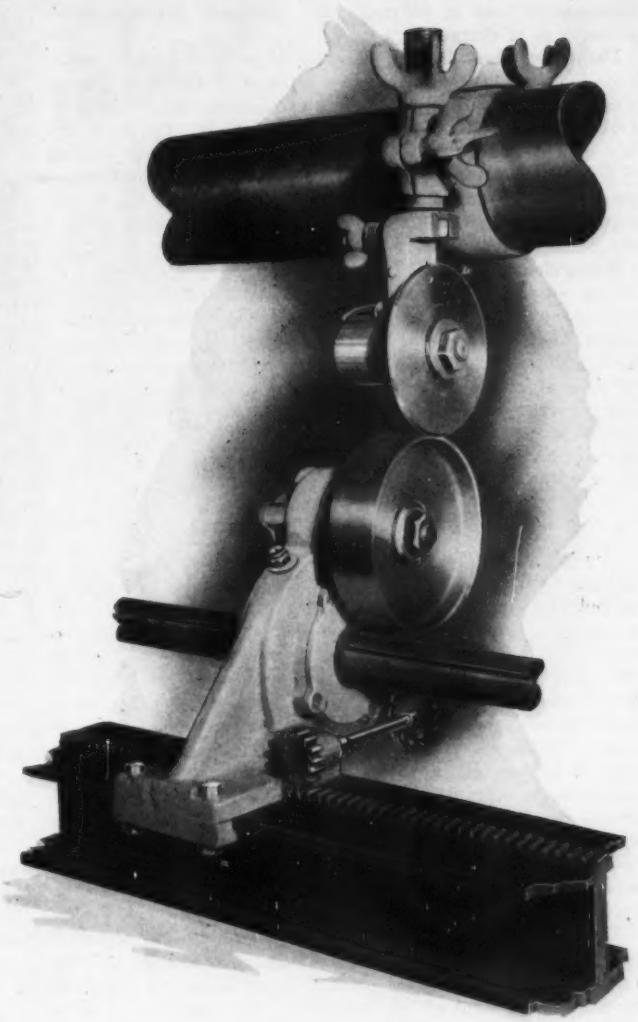
Toronto, Ont.—Handmade Papers, Ltd., a subsidiary of the Don Valley Paper Company, 56 King Street, West Toronto, is considering the construction of a new plant unit to cost close to $100,000, with machinery. It is understood that work will be

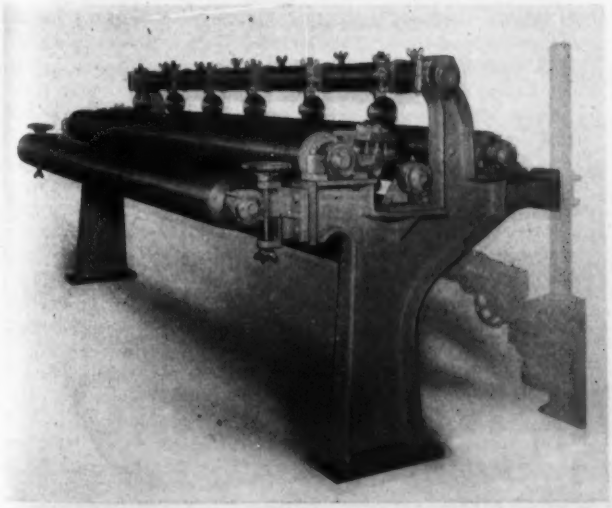
In Blade Changing Time is Money

NO ONE likes to halt a winding operation to change slitter blades. Naturally, the harder it is to change them, the less likely are they to be changed until the paper tears. Then follows another of those annoying stops that limit production and lessen profits.

The new M & W Slitter Part takes the bother and expense out of blade-changing. No longer is it necessary to undo bearing bolts, lift the bottom slitter shaft, and strip off one or more outside slitter to get at a dull blade midway of the shaft.

Instead of that time-wasting process, it is only necessary to undo one nut for the blade to be replaced. Nothing else is disturbed. Retighten the nut—adjust the blades to touch—and the thing is done.





M. & W. Ball Bearing Slitter Part. The bottom slitter blades are behind the upper guide roll.

The shaft is splined, and the bottom blades are gear-driven at three times the shaft speed. That means freedom from vibration. The short blade shafts (both top and bottom), as well as the main shaft, run in ball bearings. That means freedom from wabble and minimum wear. And those features in turn mean clean, straight cutting, no dust, and longer blade life. They mean better rolls at less cost, and satisfied customers.

When you are looking over your mill equipment for points that need modernizing, consider the Slitters.

THE MOORE & WHITE COMPANY
Established 1885
15th ST. & LEHIGH AVE. PHILADELPHIA, PA.

placed under way at an early date. Company engineering department is in charge.

Dalhousie, New Brunswick—The New Brunswick International Paper Company has active work in progress on the installation of a news print machine at its local mill, making the fourth such operating unit. It is expected that the work will be completed early in the coming year, giving the plant a rating of 575 tons of newsprint per day, and making this the third largest plant in the International chain of mills in Canada. It is proposed to place the new machine unit in service as soon as it is ready.

Edmundston, N. B.—The Fraser Companies, Ltd., are continuing production on a substantial basis at their mills, and it is expected to hold to the present schedule for some weeks to come. The company mills have a rating of 150 tons of sulphite bond and waxing papers per days, with 140 tons of paper board, 110 tons of catalog stock papers, as well as 210 tons of sulphite pulp, of which 159 tons is bleached. Stockholders recently authorized bonds to an amount of $30,000,000, as might be required, and of this amount, $5,000,000 has now been used as security for a temporary loan.

Urged to Locate in the South

DEXTER, N. Y., December 16, 1930.—An attempt is being made by commercial organizations in other localities to induce the Dexter Sulphite Pulp and Paper Company to change its location mainly because of the difficulty now being experienced in obtaining water power for operating purposes. An invitation was received this week from the Kentucky Utilities Company, of Louisville, Ky., in which that organization offered inducements to the firm to locate in the South and the communication pointed out that constant power is assured from the rivers in that section. Business men claim that further attempts will probably be made to draw industries to other places and there is a possibility that their efforts may be successful unless a supply of steady power during drought periods is assured by the construction of a large storage reservoir. Many of the Northern New York paper mills are now being handicapped by low water conditions which have resulted in curtailed schedules in many instances.

The Dexter Sulphite Pulp and Paper Company was organized in 1887 and is rated as the principal industry in this place. Only recently a modern new plant was built and it houses the latest and most improved kinds of mill equipment. The sulphite mill has a capacity for turning out eighty tons of high grade chemical pulp daily and some of this product is disposed of to other firms. The bag mill turns out about 3,600,000 paper bags of various grades daily and furnishes steady employment to a large number of local residents.

Engineers are now working on plans for the establishment of a huge reservoir which will impound billions of cubic feet of water and the project is under the direction of the Black River Regulating District Board. If the project is carried through a lake several miles long will be completed and incidentally the flow of the Black River will be regulated so as to eliminate the hazards of high water in spring and mill curtailment in late summer and early fall because of low water. By creating this flow it is claimed that Northern New York would be placed on an even basis with the best power regions of the country in the fight to retain its manufacturing establishments.

New Buffalo Forge Catalog

Buffalo Forge Company, engineers and manufacturers, of Buffalo, N. Y., have issued a new bulletin showing the latest developments in the line of unit heaters. It is claimed to be the only book of its kind describing the five different types illustrated in its pages. The types described are: Buffalo Highboy and Lowboy Units; Buffalo Wetboy Units; Buffalo Model "B" Breezo-Fin Heaters and Buffalo Gas Unit Heater.

Coast Paper Mills Make Good Reports

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., December 12, 1930.—Gains in net profits for the quarter ending October 31 compared with the preceding quarter were announced December 5 by officials of the Crown Zellerbach Corporation, and by the Crown Willamette Paper Company and Pacific Mills, Ltd.

Crown Zellerbach Corporation reported net income—after charging all bond and other interest depreciation, depletion, income taxes and deducting minority stockholders' interest—of $1,530,780 for the six months ended October 31, 1930. This is equivalent to approximately twice the preferred dividend requirement of $776,383, and after such dividends, to 38 cents per share on the 1,991,680 common shares ontstanding at the end of the fiscal half year, or at the annual rate of 76 cents per share.

Profits before depreciation, depletion, bond interest and income taxes, amounted to $3,856,876 for the quarter ended July 31, 1930. Net income for the quarter ended October 31, 1930, after all charges, but before preferred dividends, aggregated $771,936 as against $158,844 for the preceding three months.

Increase in both gross and net profits during the second quarter reflects economies in operation and the effects of a highly diversified line of paper products, it was declared by officials. This diversification of products, it is anticipated, will be increasingly helpful in the future in offsetting the price of news print which was reduced October 1.

Consolidated earning statement of Crown-Willamette Paper Company and Pacific Mills, Ltd., released with that of the Crown Zellerbach Corporation, shows net income of $1,366,532 for the six months ended October 31, 1930, after charging all bond and other interest, depreciation, depletion and income taxes. This is equivalent to approximately twice the dividend requirements of $700,000 on the first preferred stock.

Gross profit for the three months ended October 30, 1930, amounted to $2,095,072, an increase of $254,426 over the $1,840,846 reported for the first three months of the current fiscal year. Net income also registered a gain in the second quarter amounting to $727,179 compared with $639,353 on the quarter ended July 31, 1931.

Reviewing the complete report officials expressed themselves as optimistic about the position of the respective companies.

Boston Paper Trade Happenings

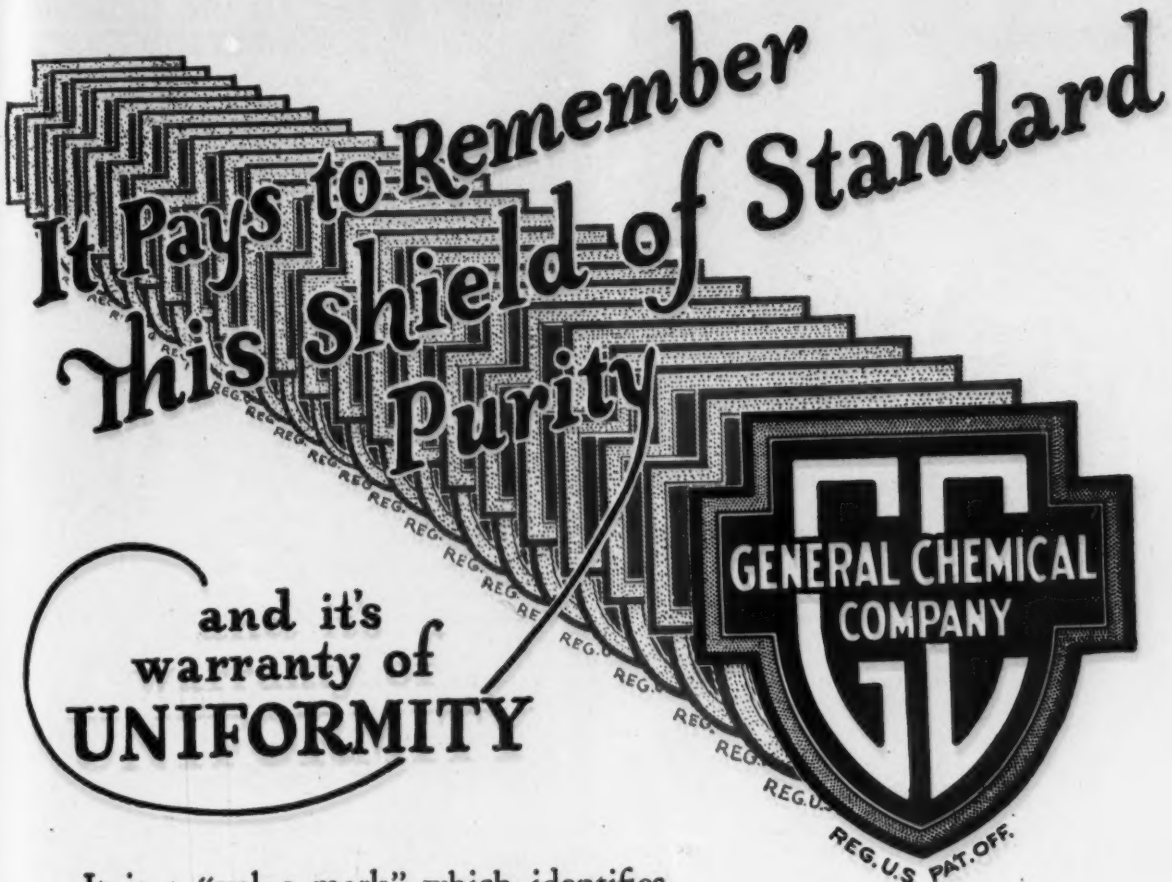
BOSTON, Mass., December 15, 1930.—A meeting of the senior salesmen of the Storrs & Bement Company was held at the office of the company Friday evening. Representatives of the S. D. Warren Company gave talks on Warren advertising for 1931 and promotional plans. They included Watson Gordon, a director; O. A. Curtis, sales manager; Jamie Stepp, promotional manager, and Ernest Johnson, advertising manager.

No. 4 of six mailing pieces being distributed to the printing trade by Carter, Rice & Co. Corp., showing Oxford papers, has been sent out. This mailing piece demonstrates Oxford dull coated and shows the particular adaptability of this paper to various printing processes, such as aluminum and silver printing, half-tone printing, line engravings and process color. The demonstration series is proving very effective and is stimulating considerable interest among the printers.

Water used in extinguishing a fire in the plant of the Economy Umbrella Manufacturing Company, 96 Essex street, damaged stock in the establishment of Stone & Forsyth Company, 67 Kingston street, Wednesday, to the extent of $5,000. The rear of the umbrella plant is adjacent to that of the Stone & Forsyth Company.

The annual meeting of the New England Paper Merchants Association is to be held January 15 at the Harvard Club of Boston.

Charles E. Daniels, treasurer of the United Paperboard Company, recently visited the Boston office of the company.



It is a "value mark" which identifies and distinguishes every product of General Chemical Company. Today, as for years past, it stands as a warranty of uniformity in the product which reaches you in the container bearing this shield. It protects you against variations in quality. It enables you to standardize your processes. It is your guarantee of value.

General Chemical Company's principal products include:

Sulphuric Acid
Nitric Acid
Muriatic Acid
Sodium Sulphide
(Chip Patented)
Acetic Acid
Glauber's Salt
Aluminum Sulphate
Disodium Phosphate
Tri Sodium Phosphate
Anhydrous
Bisulphite Soda
Baker & Adamson Quality
C. P. Acids and Reagents
Insecticides and
Fungicides

GENERAL CHEMICAL COMPANY

40 RECTOR ST., NEW YORK

CABLE ADDRESS, LYCURGUS, N. Y.

BUFFALO
CHICAGO
CLEVELAND
PITTSBURGH
PROVIDENCE
DENVER
ST. LOUIS
LOS ANGELES
PHILADELPHIA
SAN FRANCISCO
THE NICHOLS CHEMICAL CO., LTD., MONTREAL

NEW!

END GRAIN Woods

The Tightest-Gripping, Longest-Wearing Woods Ever!

The most revolutionary things in history have been simple ones... And the most revolutionary idea in filler woods is a simple one—amazingly simple,—*but amazingly effective!* Basically, just a matter of turning the grain on end,—*but what a difference that makes!*

Woods swell,—that's part of their function. But where ordinary woods hump and rise and hamper efficiency, End Grain Woods swell *sidewise*, binding the bars tighter and tighter. When bars wear down to these woods, the woods are still solid,—more solid, if anything, than when they were first installed.

End Grain Woods LAST,—so much longer than ordinary woods that we have not yet had time enough to learn when they *will* wear out. Wood paving blocks are laid, for long traffic resistance, with the end grain up—the same principle that adds tremendously to the life of End Grain Woods. They lengthen the life of fillings, holding even stainless and bronze bars firmly until they are worn out.

They will not soften or cut out with rough stock. They will not splinter and even if split entirely through remain snugly in place.

Don't "cuss" woods... try End Grains and you won't have occasion to. They can be installed in any plug at very slight cost, — and you'll never be sorry you changed.

More information?... ask your questions and we'll answer 'em.

PROVEN IN SERVICE!

End Grain Woods have been thoroughly tested before we felt ready to tell you about them.

A board mill considered four to six weeks a good run with ordinary woods.

This mill has been using an End Grain installation for *ten months* and reports woods and bars "still going strong".

Another mill that formerly averaged fifteen sets of fillings a year has been using End Grains for ten weeks and finds them "as solid as when first installed".

A third mill tried a test filling of End Grains. It has now ordered its third set,—the most convincing endorsement possible.

EXCLUSIVELY NOBLE & WOOD

End Grain Woods are fully patent protected and obtainable only through the Noble & Wood Machine Company.

We've tested and proven them conscientiously. Now we offer them to the industry, convinced that you will find them a big factor in improving jordan service and reducing overhead.

The ideal combination is with the new Buehler Bandless Plug, — another exclusive Noble & Wood efficiency feature,—but regardless of what type jordan or plug you are using, you can improve its service tremendously by equipping it with these new, revolutionary End Grain Woods.

Send in your orders—for a single filling or a shopfull. We're ready!

NOBLE & WOOD MACHINE COMPANY

Hoosick Falls New York

NEW!

BUEHLER BANDLESS PLUGS

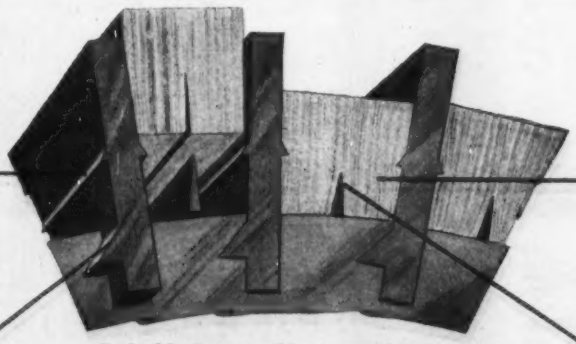
Noble & Wood's Newest Contribution to Efficient, Trouble-Proof Service

Here, at last, is an entirely new type bandless jordan plug with bars and woods as solidly anchored as though they were cast in a single piece with the plug body.

The secret is in the self-anchoring bars and End Grain Woods. Bars are immune to the slightest suggestion of wabble or waver, cannot pull or work loose under any circumstances and are actually as firm when worn to the limits of possible service as when first installed.

An added feature is the use of replaceable disc and ring at small and large ends, respectively, which absorb wear and protect plug body at these vital points.

It's the sort of plug that brings joy into the crankiest jordan man's life,—we've proven it with the fussiest. Study the section below and form your own conclusions.



LOCKING BEAD

Locks into woods when woods are driven home. Holds woods firmly and, by raising the center of vibration, increases rigidity of bars.

SPUR LOCK

Plug body is mortised and bar base machined with interlocking spurs that anchor bars firmly to body. Bars are driven in longitudinally, the ingeniously tapered spur engaging them with increasing tightness as they advance.

END GRAIN WOODS

Grip tighter the longer they're used. Outlast the life of the fillings. Will not roughen, cut out, splinter or tear loose.

WEDGE BAR

This runs entire length of woods. When woods are driven home, wedge bar expands lower section (below locking head) to binding fit between bars, exactly as wedge locks handle to axe head.

End old plug troubles,—avoid future ones. The new Buehler Bandless Plug answers all plug problems. Write for detailed information.

NOBLE & WOOD MACHINE COMPANY

Hoosick Falls New York

Pacific Coast Representative
355 Everett St.
Portland, Ore

PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

For the Month Ending September 30, and for the Nine Months Ending September 30, 1930 as Compared with Corresponding Month of Previous Year

IMPORTS—PAPER

		September				Nine Months Ending September 30			
		1929		1930		1929		1930	
		Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
PAPER AND MANUFACTURES		.....	$13,352,579	.....	$11,126,352	.....	$118,796,313	.....	$109,721,086
Printing paper—									
Standard news print	lbs...free	392,246,360	11,617,098	351,992,923	10,050,178	3,496,115,632	104,748,669	3,359,370,152	97,443,529
Imports from:									
Finland	lbs.	3,903,343	94,706	5,430,800	123,477	46,882,306	1,129,932	62,989,999	1,450,714
Germany	lbs.	1,418,374	34,251	2,815,382	70,438	14,450,381	355,750	18,845,855	457,958
Norway	lbs.	124,304	2,904	1,452,222	34,687	4,779,798	119,393	13,221,081	313,879
Sweden	lbs.	5,696,064	145,734	8,341,556	203,226	73,047,764	1,860,447	99,163,839	2,467,423
Canada	lbs.	350,032,454	10,451,864	306,616,856	8,861,172	3,160,375,541	95,771,176	2,946,400,941	86,548,758
Newfoundland and Labrador	lbs.	31,071,821	887,639	27,334,784	757,131	196,333,094	5,506,676	218,747,114	6,204,759
Other countries	lbs.	.....	.....	1,323	47	246,748	5,295	1,323	47
All other, n. e. s.	lbs...dut.	415,681	25,725	210,095	8,541	3,238,647	162,226	2,061,435	98,711
Greaseproof and waterproof papers	lbs...dut.	142,656	39,242	33,780	7,382	1,302,241	318,947	864,214	266,712
Kraft wrapping paper	lbs...dut.	646,006	25,945	562,117	20,409	7,213,725	310,361	6,007,251	237,422
Other wrapping paper	lbs...dut.	915,424	20,284	142,806	7,855	5,703,467	164,838	1,817,963	106,360
Writing and drawing papers, etc.	lbs...dut.	293,471	83,921	247,152	552,970	2,389,324	631,189	2,754,896	690,773
Writing paper and envelope combinations	dut.	.....	.....	.....	55,379	.....	.....	.....	159,900
Surface-coated paper	lbs...dut.	187,803	86,928	98,825	45,297	1,868,879	798,823	1,476,289	605,583
Uncoated paper, decorated or embossed	lbs...dut.	.....	.....	12,996	4,676	.....	.....	48,081	17,215
Tissue and similar papers	lbs...dut.	488,966	239,734	.....	.....	3,627,538	1,910,483	2,056,030	1,130,184
Weighing not over 6 pounds to the ream	lbs...dut.	.....	.....	90,632	48,466	.....	.....	373,500	205,775
Other	lbs...dut.	.....	.....	27,248	12,436	.....	.....	136,652	55,382
Paper boards, n. e. s.—									
Pulp board, in rolls	lbs...dut.	4,672,045	98,863	2,742,959	63,002	44,616,755	968,110	34,983,623	788,492
Paper board, pulp board, n. e. s., and card board	lbs...dut.	1,161,092	26,718	965,222	25,706	16,106,036	381,395	10,479,400	255,026
Leather board, test and wall board	lbs...dut.	176,022	7,092	118,920	11,165	1,394,461	55,177	1,351,740	80,498
Cigarette paper, cigarette books, and covers	lbs...dut.	1,086,509	417,576	935,059	265,788	8,961,020	3,024,623	9,474,753	3,103,398
Hanging paper (wall paper)	lbs...dut.	245,774	79,032	84,161	36,452	1,943,282	550,267	1,652,284	497,186
Duplex decalcomania paper, not printed	lbs...free	64,302	16,031	50,599	11,545	481,970	121,540	396,532	94,349
Paper boxes	dut.	.....	172,964	.....	96,413	.....	1,324,309	.....	981,110
Papier-mache and pulp manufactures, n. e. s.	dut.	.....	39,582	.....	35,378	.....	438,991	.....	439,893
All other paper and manufactures	dut.	.....	355,844	.....	264,987	.....	2,886,365	.....	2,463,585
WOOD PULP									
Mechanically ground wood pulp	tons..free	18,452	$482,051	.....	.....	168,779	$4,280,855	128,828	$3,593,166
Unbleached	tons..free	.....	.....	26,141	659,030	.....	.....	64,449	1,681,171
Bleached	tons..free	.....	.....	200	5,610	.....	.....	2,343	63,699
Sulphite wood pulp	tons	78,457	4,623,448	74,101	4,194,888	767,308	45,028,076	734,274	42,486,889
Unbleached	tons..free	54,941	2,809,851	46,809	2,322,811	518,055	26,118,666	492,722	25,167,199
Bleached	tons..free	23,561	1,813,597	27,292	1,872,077	249,253	18,909,410	241,552	17,319,690
Imports from:									
Finland	tons	6,863	344,189	7,158	339,373	83,879	4,066,448	75,755	3,764,557
Germany	tons	3,915	279,876	5,769	383,062	47,613	3,308,231	50,289	3,376,820
Norway	tons	1,491	93,109	5,329	337,002	44,280	3,014,219	47,119	2,994,710
Sweden	tons	31,161	1,756,195	27,697	1,488,087	295,633	16,358,046	276,170	15,082,408
Canada	tons	32,671	2,031,527	26,792	1,578,975	279,253	17,389,027	270,570	16,522,169
Other countries	tons	2,356	118,552	1,356	68,389	16,650	892,105	14,371	746,425
Sulphate wood pulp, unbleached (kraft pulp)	tons..free	41,020	2,142,946	27,550	1,147,935	279,975	15,080,517	257,734	12,462,597
Imports from.									
Finland	tons	4,880	236,903	1,829	66,347	22,618	1,081,542	27,417	1,185,388
Norway	tons	1,299	64,059	935	33,418	11,920	628,582	10,430	459,805
Sweden	tons	24,806	1,254,413	20,093	755,528	157,525	8,000,375	163,722	7,438,544
Canada	tons	9,452	559,832	4,491	285,717	83,210	5,152,732	53,042	3,242,832
Other countries	tons	583	27,739	202	6,925	4,702	217,286	3,123	136,028
Sulphate wood pulp, bleached	tons..free	124	11,237	1,645	132,072	11,353	842,233	11,109	873,278
Soda pulp	tons..free	.....	.....	428	29,437	.....	.....	1,280	87,693
Other pulp	tons..free	518	41,094	41	4,723	4,523	371,065	2,270	169,091
CRUDE PAPER STOCK									
Rags for paper stock	lbs...free	36,024,522	796,583	18,835,047	274,552	327,437,788	6,783,667	243,360,756	4,880,488
All other paper stock	lbs...free	22,686,183	442,332	12,468,641	162,735	204,096,353	4,115,787	191,453,205	2,567,269
CHEMICALS AND OTHER PAPER MAKERS' MATERIALS									
Colors, dyes, stains, color acids, and color bases, n. e. s.	lbs...dut.	646,924	$730,178	340,493	$346,375	5,839,453	6,565,920	3,672,354	$3,906,643
Imports from:									
Belgium	lbs.	9,399	9,127	5,910	7,840	50,212	60,872	43,492	54,354
France	lbs.	4,736	4,647	5,849	7,596	102,963	153,254	31,230	40,492
Germany	lbs.	283,730	272,911	173,747	177,916	3,765,413	4,095,840	2,221,685	2,358,548
Italy	lbs.	.....	.....	.....	.....	8,228	7,074	10,569	12,287
Switzerland	lbs.	338,232	429,471	133,935	128,642	1,803,909	2,126,306	1,248,410	1,326,731
United Kingdom	lbs.	7,644	10,638	18,186	20,779	63,610	72,738	75,965	79,568
Other countries	lbs.	3,183	3,384	2,866	3,602	45,118	49,836	41,003	34,663
Casein or lactarene	lbs...dut.	1,137,284	138,242	742,176	41,291	21,839,383	2,614,665	16,962,867	1,834,726
China clay or kaolin	tons..dut.	26,281	276,128	19,973	203,861	205,396	2,222,583	174,812	1,821,624

(*Continued on page 52*)

SHENANGO ■ PENN ■ CENTRIFUGALLY CAST BRONZE

A SUPERIOR BRONZE ALLOY FOR EACH OF YOUR ROLL CONDITIONS » » » »

Uniform crystalline structure . . . tough, durable, acid resisting compositions . . . when you require them.

SHENANGO-PENN MOLD COMPANY

EXECUTIVE OFFICES: PITTSBURGH, PA.

Inquiries for Quotations and Information should be sent to works office, Dover, Ohio

PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

(Continued from page 50)

EXPORTS—PAPER

	September 1929 Quantity	September 1929 Value	September 1930 Quantity	September 1930 Value	Nine Months Ending September 30 1929 Quantity	Nine Months Ending September 30 1929 Value	Nine Months Ending September 30 1930 Quantity	Nine Months Ending September 30 1930 Value
PAPER AND MANUFACTURES	.....	$2,986,977	.....	2,298,070	.....	$27,852,589	.....	23,893,009
Printing paper—								
News print paper ..... lbs.	2,009,552	76,671	1,448,260	54,228	23,709,424	889,163	16,433,239	668,723
Exports to:								
Europe ..... lbs.	.....	.....	156,937	6,273	599,304	38,178	1,558,625	83,735
Canada ..... lbs.	19,219	1,217	.....	.....	480,702	22,700	50,207	2,006
Central America ..... lbs.	193,253	6,726	118,830	4,244	1,087,987	38,906	1,122,048	40,410
Cuba ..... lbs.	329,405	12,751	177,770	8,638	2,499,990	92,782	2,467,880	103,977
South America ..... lbs.	528,804	22,914	176,674	5,928	6,674,652	251,040	3,521,434	122,121
China, Hong Kong, and Kwantung ... lbs.	211,545	7,000	219,245	7,955	3,923,647	132,928	1,980,473	108,434
Philippine Islands ..... lbs.	644,784	22,620	541,074	18,742	7,010,157	248,924	5,021,146	176,801
Other countries ..... lbs.	83,262	3,443	57,730	2,448	1,432,985	63,705	711,426	31,177
Book paper, not coated ..... lbs.	2,486,392	172,652	2,470,086	158,396	27,971,607	1,974,202	26,643,086	1,787,118
Exports to:								
Europe ..... lbs.	89,415	6,828	339,301	23,784	1,392,860	123,703	1,142,301	90,881
Canada ..... lbs.	869,147	49,818	1,273,279	73,137	8,952,509	536,385	8,703,832	524,782
Mexico ..... lbs.	44,670	5,728	41,519	4,580	437,828	45,403	532,299	57,596
Cuba ..... lbs.	424,671	29,754	96,601	6,290	3,858,410	272,162	3,054,383	208,953
Argentina ..... lbs.	135,559	10,432	62,841	3,536	1,589,215	125,316	1,191,123	87,436
Other South America ..... lbs.	114,326	10,103	36,723	3,675	1,063,051	88,740	1,381,446	107,345
China, Hong Kong, and Kwantung ... lbs.	258,986	18,028	222,954	13,639	5,160,702	313,925	4,763,522	294,165
Philippine Islands ..... lbs.	393,737	26,007	209,409	14,185	3,349,415	228,877	2,965,604	192,157
Australia ..... lbs.	61,195	6,804	23,012	1,897	969,736	136,454	798,795	61,604
Other countries ..... lbs.	94,686	9,150	164,447	13,673	1,197,881	103,237	2,109,781	162,200
Cover paper ..... lbs.	216,288	33,034	133,682	20,416	1,557,966	265,031	1,707,055	268,745
Greaseproof and waterproof paper ..... lbs.	286,670	41,841	327,067	60,532	2,247,307	404,907	2,718,934	534,226
Overissue and old newspapers ..... lbs.	12,196,863	146,533	12,348,045	85,204	110,315,502	1,236,581	122,739,022	993,997
Wrapping paper ..... lbs.	3,017,972	205,363	2,796,974	202,147	31,146,349	2,145,761	33,689,278	2,144,710
Surface-coated paper ..... lbs.	558,075	66,447	355,286	44,022	11,737,774	1,098,418	6,648,695	739,179
Tissue and crepe paper ..... lbs.	502,488	116,530	313,722	72,313	3,568,920	804,361	3,685,649	724,686
Toilet paper ..... lbs.	595,161	64,677	657,771	67,363	5,298,800	595,826	5,656,112	614,655
Paper towels and napkins ..... lbs.	391,753	47,068	282,442	40,419	2,648,805	327,115	3,090,320	357,917
Boxboard of paperboard and strawboard .... lbs.	5,232,680	132,213	5,031,179	127,529	42,915,454	1,139,353	51,417,866	1,267,339
Bristols and bristol board ..... lbs.	225,355	19,328	120,130	13,703	2,199,672	215,344	1,689,079	160,253
Other paper board ..... lbs.	5,900,687	194,918	2,017,763	104,815	34,544,340	1,539,102	26,726,810	1,289,367
Sheathing and building paper ..... lbs.	1,539,633	50,167	1,159,883	38,389	17,566,538	589,772	15,489,355	526,596
Fiber insulating lath or board ..... sq. ft.	3,849,862	126,177	5,512,136	187,351	21,359,088	710,806	49,957,809	1,601,056
Wall board of paper or pulp ..... sq. ft.	6,385,386	211,197	2,082,464	74,735	51,030,356	1,659,563	22,479,941	748,930
Blotting paper ..... lbs.	249,441	30,168	312,343	34,246	2,717,791	323,458	2,500,359	303,738
Filing folders, index cards, and other office forms ..... lbs.	171,996	52,048	132,639	47,138	1,221,102	444,725	1,229,873	456,421
Papeteries (fancy writing paper) ..... lbs.	93,635	22,551	90,141	20,298	559,430	148,679	496,408	112,261
Other writing paper ..... lbs.	2,673,948	276,992	1,615,009	147,116	22,017,559	2,316,064	16,817,671	1,648,151
Paper hangings (wall paper) ..... rolls	.....	21,100	145,400	15,584	.....	472,494	2,423,600	374,213
Paper bags ..... lbs.	1,282,481	91,339	1,081,336	83,122	9,198,141	763,248	8,015,010	648,979
Boxes and cartons ..... lbs.	2,062,549	142,745	1,869,256	125,863	22,293,632	1,458,887	18,855,965	1,099,757
Envelopes ..... lbs.	186,208	30,794	181,779	32,517	1,814,088	314,030	1,738,604	285,156
Vulcanized fiber sheets, strips, rods, and tubes ..... lbs.	449,716	104,383	336,630	80,155	4,687,727	1,143,282	3,571,261	883,694
Cash-register and adding-machine paper ..... lbs.	698,818	57,085	232,014	27,402	3,871,409	375,388	3,722,906	341,522
Other paper and paper products	.....	452,956	.....	333,067	.....	4,497,029	.....	3,311,620

WOOD PULP AND PAPER STOCK

Sulphite wood pulp ..... tons	1,913	131,924	951	61,289	30,967	1,682,363	21,213	1,185,879
Soda wood pulp ..... tons	272	23,913	99	7,701	1,493	122,769	1,703	132,670
Other wood pulp ..... tons	699	39,771	46	2,863	5,537	373,361	7,411	232,994
Rags and other paper stock ..... lbs.	6,004,804	87,212	4,946,768	56,037	83,963,218	1,493,502	47,392,394	667,422

PAPER AND PULP MILL MACHINERY

Paper and pulp mill machinery	.....	394,028	.....	325,531	.....	2,941,331	.....	2,668,495

Warned To Watch Transportation Events

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., December 16 ,1930—P. J. Dowd, manager of the Holyoke Traffic Bureau last week sent out a warning to local shippers to watch sharply the impending events in the transportation field especially as they apply to the combination of freight services of the Boston & Maine and New Haven Railroads.

The recent order of the Interstate Commerce Commission to the Pennsylvania Railroad to divest itself of the controlling interest in the Wabash & Lehigh Valley roads under the terms of the Clayton act is believed to have bearing on the freight merger locally. If this combination of freight service menaces the interests of the shippers in Holyoke they may fall back on the Clayton act for protestation, Mr. Dowd observes.

Most of the Holyoke paper mills are served by both roads, one running to the rear and one to the front of the mills. Up to the present time such a merger has not been put in active operation here.

International Declares Regular Dividend

The board of directors of the International Paper and Power Company, at a meeting held last week, declared the regular quarterly dividend of one and three-quarters per cent on the 7 per cent cumulative preferred stock of the company, and the regular quarterly dividend of one and one-half per cent on the 6 per cent preferred stock of the company, payable January 15, 1931, to holders of record at the close of business December 26, 1930.

The October figures and the preliminary figures for November show earnings for each of these months exceeding the monthly preferred stock dividend accrual, and indications are that earnings for the current quarter will exceed the preferred stock dividend requirements for the quarter.

The substantial increase over the preceding quarters this year, while partly seasonal, is also due to increased income from the Company's Canadian power properties, reduction in administration expenses, and increased efficiency of its paper mill operations.

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The 56th Consecutive Annual Edition

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Vol. XCI New York, December 18, 1930 No. 25

COMING EVENTS

American Paper and Pulp Association, fifty-fourth Convention and Meeting. Pennsylvania Hotel, February 16-19. Annual Meeting, Thursday, February 19. Annual Banquet, Grand Ball Room, Thursday, February 19.

National Paper Trade Association of the United States. Convention, Pennsylvania Hotel, February 16-18. Luncheon, Wednesday, February 18.

Technical Association of the Pulp and Paper Industry. Convention, Pennsylvania Hotel, February 17-19. Luncheon, Thursday, February 19.

Salesmen's Association of the Paper Industry. Annual Meeting, Pennsylvania Hotel, Tuesday, February 17. Luncheon, Tuesday, February 17.

New York Association of Dealers in Paper Mills' Supplies, Annual Banquet, Hotel Commodore, Tuesday, February 17.

PAPER A UNIVERSAL NECESSITY

Someone has aptly said that "the consumption of paper is the measure of a people's culture." Paper is a universal necessity. Civilization would be thrown into chaos if its manufacture were suddenly to cease. Man uses it in some form or fashion from his arising in the morning until his retiring at night. The business of the world could not be conducted without it. It enters in some manner into all branches of trade and industry. It is practically impossible to conceive of any commodity which plays a more common part in the activities of man than does paper.

It is not surprising, therefore, that the production of paper has increased in all civilized countries and especially in the United States so rapidly in the past few years. About fifty years ago the width of paper machines was usually slightly more or less than fifty inches and comparatively few approached one hundred inches in width. The speed then of paper machines was frequently less than one hundred feet per minute and fibers, other than wood pulp, were still the material most commonly employed to make paper. Contrast this with machines of, in a few instances at least, three hundred inches in width and designed to run well above one thousand feet per minute and some picture may be visualized of the genius and enterprise that has been displayed to make it possible for the industry to keep pace with man's almost insatiable appetite for paper.

One writer who has apparently made a careful study of the subject states that basing our consumption of all varieties of paper at 12,329,000 tons annually, which was the record for 1928, our consumption will be double that quantity and that we will be consuming 24,576,000 tons annually by 1948. This may seem an over optimistic prediction, but it does help to substantiate the forecasts of more conservative authorities that consumption of paper in general will show a very decided continuous increase for years to come.

In spite of the general depression throughout the world, the consumption of paper, owing to widely diversified uses, has held up surprisingly well. This means undoubtedly that paper, when the turn in the depression comes, and many authorities believe that it is just around the corner, will be the first commodity to experience an expansion in the demand. Judging from revivals in business in the past, it seems fair also to assume that the increase in the demand for paper will be of surprisingly large proportions.

This points to a prosperous period ahead for the American paper industry. Fortunately the industry is amply prepared to meet any demands made upon it for increased supplies in all varieties of paper and paper products because in the past few years productive capacity has been expanded in a manner that has not at times seemed altogether wise or met with the approval of the more conservative members of the industry. Going mills, also, have been expanded and thoroughly modernized in the recent past as never before in the history of the industry. This business of bringing the mills up to date will continue, but for the present at least, new enterprises, except they are undertaken by men who are fully acquainted with the conditions and needs of the industry, are not to be advised because some time, naturally, will be required to take up the present slack in production.

Judging, however, from the experiences of the past in times like the present and the increasing urge of man everywhere to use more and more paper for an ever growing variety of purposes, it may almost certainly be predicted that the slack in production that now exists will be taken up more rapidly than many in the industry at present believe, and that soon paper consumption will start to make another new record just as it has so frequently in the past.

STABILIZATION OF EMPLOYMENT

A stabilization of employment plan whereby employees of the Incandescent Lamp Department of the General Electric Company of not less than two years continuous service, will be guaranteed fifty weeks work for the year 1931, has been announced by President Gerard Swope and will become effective January 1, 1931 upon acceptance by sixty percent of the eligible employees.

In June of this year President Swope announced a comprehensive plan to minimize the cause and effect of unemployment in the company. The plan provided, first, for the stabilization of employment and, secondly, for the relief of the unemployed. Because of unemployement conditions in apparatus works of the Company, all employees, beginning December 1, are paying one percent of wage or salary into the unemployment pension fund Such collections will be made through the month of December and longer if necessary. Employees of the various incandescent lamp works, about 8,000 in number, did not come under the provisions of the plan as announced in June.

"Stabilization of employment," explains Mr. Swope, "is much simpler in those departments where the product has been standardized and where there is less risk of obsolescence and deterioration. The product of the Incandescent Lamp Department is notably one of these. The plan for a guarantee of work under certain conditions is offered as a result of the stabilization of production and employment in the Incandescent Lamp Department. It is hoped that the plan may be continued from year to year, possibly with modifications resulting from experience."

Under the conditions of the employment stabilization plan, a week's work shall comprise the normal working hours per week for each division, department, factory or activity as defined by its manager and subject to change by him, but in no case shall it be less than thirty hours work in any calendar week except as affected by deductions for holidays, illness of the employee, or through fire, flood, strike or other extreme emergency. Subject to such terms, full payment will be made to employees for 30 hours' work in case of employment for less than 30 hours in any calendar week.

Participation under the plan is optional and will become effective upon acceptance of 60 percent of the eligible employees of each works and by the individual application of the employee who requests the company to deduct one percent of his or her weekly earnings and credit the amount so deducted to such employee.

The company reserves the right to transfer employees to other work, where the employee shall receive the prevailing wage for the work, but not for less than the minimum hours guaranteed. This guarantee expires December 31, 1931.

Buys Interest in Deerfield Glassine Co.

[FROM OUR REGULAR CORRESPONDENT]

MONROE BRIDGE, Mass., December 16, 1930—George M. Seaman, President of the Seaman Paper Company has bought a substantial interest in the Deerfield Glassine Company of this place. Mr. Seaman has been made chairman of the board of directors. The Seaman Company will act as exclusive agents for the mill products. The plant has been enlarged by the installation of a new bleaching plant and the addition of further equipment for hydrating fibers and finishing its product.

The officers of the plant who will continue as before are as follows: President and Sales Manager, Joseph H. Wallace; Vice President and Treasurer, William L. Ross; Secretary, Joseph Poole; Production Manager, Paul E. Hodgdon.

American Paper & Pulp Association to Move

The American Paper and Pulp Association, according to its general manager, Jesse H. Neal, has decided to move its headquarters to new and better offices. The association has leased about half the space on the eighth floor of the building recently erected on the corner of East 41st street and Lexington Avenue. All of the space is light and in the layout of the floor a room has been provided for exhibition purposes.

It is the intention, so Mr. Neal announces, to conduct a permanent exhibit for the purpose of displaying new products developed by members of the American Paper and Pulp Association. Detailed plans for this exposition will be presented later, but it is the intention of the association to provide one central place where buyers can come and see all that is new and best in paper products.

The offices will be moved on December 27 and all mail on and after that date should be addressed to the American Paper and Pulp Association, 370 Lexington Avenue, New York City.

Changes in Paper Production at Lee

[FROM OUR REGULAR CORRESPONDENT]

LEE, Mass., December 9, 1930—The new Hurlbut Paper Company of Lee has issued an interesting historical folder giving an outline of the changes that have taken place in paper production on the site of the mill where Samuel Church first began operations in 1806 within 100 miles of what was then the western frontier. The folder goes on to say:

"A handful of American craftsmen made paper by beating rags with pestle and mortar, and formed the sheet in a hand mould. Ten reams, or about 200 pounds of paper in a 12-hour day was considered good production.

"This was the first South Lee mill. Since then the old mill has passed through a century and a quarter of change, expansion and progress, yet all through the years it has built up and maintained a reputation for quality papers. This South Lee paper has borne the mark of craftsmanship—the combination of good materials and skilled workmanship—throughout its history.

"Some may recall the papers of the South Lee mill: Hurlbut's 'Bank and Bond,' Hurlbut's 'Extra Superfine,' or Hurlbut's 'Author's Linen.' The latter contained in its web portraits of such American authors as Longfellow, Hawthorne and Bryant, reproduced in a distinguished manner. Every one of these papers represented quality that can only come from the choice of good materials, skilled workmen and good taste.

"Today the old South Lee mill stands renewed. The mill is a monument to modern paper making science, set solidly on a base of a century's experience in fine paper production.

"Little but the walls, the clear, sparkling, Berkshire spring water and abundant hydraulic power remain of the old mill. Every working part is new. The paper machines have been completely renovated and equipped with the latest devices, which insure better, cleaner and more uniform paper. The beater engines are lined with porcelain or tile. All the water used in paper making is carried from the pure spring through a modern filtration plant and then to the paper machines by clean, new copper pipes.

"With this modern equipment, plus the same care in the selection of raw materials and the benefit of the experience of skilled paper making craftsmen, the Hurlbut Paper Company is enabled to make the old 'good' papers better, and new individual papers of finer quality."

Albany To Be Main Distribution Center

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., December 15, 1930.—Arrangements have been made by the A. P. W. Paper Company for the disposal and sale of wood pulp through the local port terminal and an ocean going vessel arrived here this week with several thousand tons from Nova Scotia. Previous to this time the sale of similar cargoes has been completed in New York City and officials announced that from now on it is planned to make the terminal here a main distribution center. The Norwegian vessel which docked here this week carried a large consignment of the product from the A. P. W. Pulp and Power Company, a subsidiary of the local concern. It was announced that the company would make use of the new storage sheds recently completed in connection with the port project and a large force of stevedores are being employed in the unloading work.

Officials of the company declared that the mills at Sheet Harbor are now turning out about 30,000 tons of surplus pulp annually which is being sold to paper firms in New England, Pennsylvania and New York. Now that the channel in the Hudson has been deepened sufficient to allow the passage of ocean going vessels to this city the company plans to bring all cargoes direct to the local port terminal.

The shipment which arrived here this week was the largest yet received at the terminal and it is planned to bring a few more before the navigation season closes for this season.

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SCIENTIFIC AMERICAN

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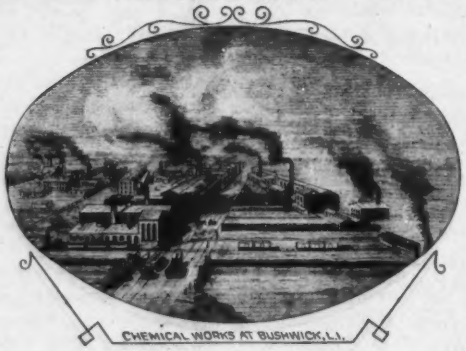
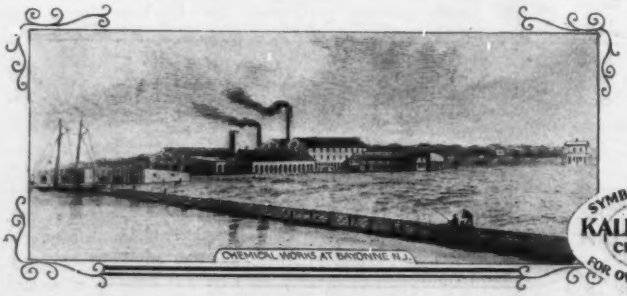
NOVEMBER 1880

"... the illustrations we herewith give of the manufacture of chemicals, as carried on at the works of Martin Kalbfleisch's Sons, the largest establishment of the kind in the country, cannot fail to command particular attention, the more especially as their productions are used in nearly every manufacturing town in the country, and these or similar articles constitute an indispensable part of the stock of every chemist. "... started in 1829, there are now ... buildings


CHEMICAL WORKS AT BUSHWICK, L.I.

and yards covering twenty acres of land on Newton Creek, at a point which can be reached by vessels drawing nine feet of water, but yet within the city limits of Brooklyn, N. Y. The firm also have extensive works at Bayonne, N. J. and Buffalo, N. Y., with which localities they have thought it best to divide their business on account of its rapid growth." *So says the Scientific American of November 20, 1880. At that time, Kalbfleisch was fifty-one years old.*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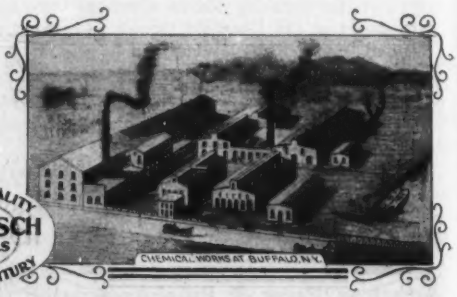
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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Alkaline Pulping Reactions Of The Long Leaf Pine*

By Harry F. Lewis[1] and Edwin R. Laughlin[2]

One of the most plentiful of all the coniferous trees in the United States is the long leaf southern pine (pinus Palustris). This pine, known also as the long leaf yellow pine, southern hard pine. North Carolina pitch pine, southern yellow pine, fat pine, etc., grows throughout the Atlantic Coast region from southeast Virginia to southern Florida, westward to Texas, and northward to the northern part of Alabama, to northwest Georgia, central and northern Mississippi, and finally western Louisiana to the northern border of the state.

The wood is hard and dense, and very durable. It contains a large amount of resin and is sold as "pitch pine." Some considerable amount of long leaf pine is now being converted into high grade kraft paper by the sulphate process. The product is rather hard to bleach but makes a good quality of paper. Turpentine and pine oil are recovered as by-products from the digester relief. Because of the high pitch content and the difficulty of penetration of acid cooking liquors into the wood, long leaf pine is unsuited for use (without pre-treatment) in the sulphite process.

As the first step in the broad investigation on the pulping reactions, it seemed desirable to determine whether long leaf pine (first treated to remove the resin) would react similarly to spruce when treated under the same conditions by the alkaline pulping process. Since a very complete study has been reported recently by the Forest Products Laboratory[3] on this reaction and standard control methods outlined in full detail, the work reported in this paper has been carried on so as to duplicate as far as possible the conditions of that study. Ground meal from the long leaf pine has been substituted for ground meal from the spruce.

It is not necessary to discuss in detail the apparatus and analytical methods used, for these have been fully outlined in the first mentioned publication. In addition, a rather extensive bibliography will be found in the same paper.

Description of Wood Sample

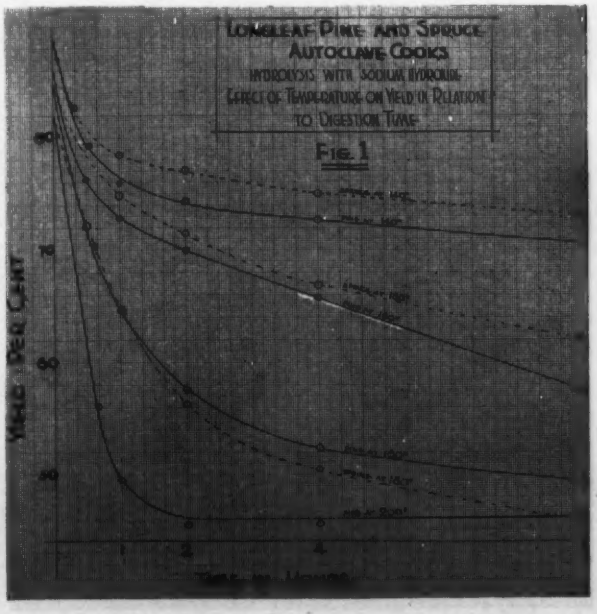
A large quantity of ground chips representing freshly cut butt logs of the long leaf pine obtained from Walnut Hill in Escambia County, Florida, was secured from the Forest Products Laboratory. This material was ground in a Eureka flour mill and sifted so as to recover the fraction between 40 and 60 mesh. This wood meal was divided into smaller portions, put up in cotton bags and extracted with a 2:1 benzene-alcohol mixture; the residues were mixed together and dried at 105° before digestion.

Chemical Analysis of the Alcohol-Benzol Extracted Long Leaf Pine

	%
Lignin	29.4
Total cellulose	57.4
Total pentosan	12.4
Chlorine consumption in the isolation of cellulose	36.5
Solubility in 1.0% NaOH	10.3

Apparatus and Experimental Procedure

The apparatus used for the pulping experiments was essentially the same as that described by Bray, the main difference being the substitution of an "Ilium" bomb for the steel



* This report is the first in a series being prepared by the Chemistry Department of Ohio Wesleyan University, Delaware, Ohio, and the Institute of Paper Chemistry, Appleton, Wis., dealing with the pulping reactions of various reagents on the long leaf pine. The authors wish to acknowledge the help of Mr. C. C. Heritage, formerly of the Forest Products Laboratory and now with the Oxford Paper Company, and of Mr. M. W. Bray of the Forest Products Laboratory.

[1] Professor of chemistry Institute of Paper Chemistry, Appleton, Wis.

[2] Holder of Fellowship established at Institute of Paper Chemistry, Appleton, Wis., by Pennsylvania Salt Mfg. Co., Philadelphia, Pa.

[3] M. W. Bray, Paper Trade Journal, 87, No. 23, 64-70, Dec. 6, 1928.

bomb previously described.[4] (The bomb was constructed from the plan of the Forest Products Laboratory and was the same in shape and size as the steel bomb.) The "Ilium" bomb was used so that the alkaline pulping experiments could be later duplicated by a study of acid digestions without change in the apparatus or process.

Analytical Methods

The fibrous residue resulting from the pulping experiments was chemically analyzed by essentially the same methods as those used by the Forest Products Laboratory.[5] Unfortunately, the alpha-cellulose contents of the pulps were not determined.

Procedure

A 25 gram sample of extracted wood meal was mixed in the "Ilium" bomb with 250 cc of 0.5 N sodium hydroxide solution, the bomb was closed and put into the bath, which was at a temperature somewhat higher than the temperature desired for the digestion. The time was noted and then the time necessary to bring the contents of the bomb to the desired temperature. By careful manipulation, the temperature rise period could be controlled so as to be fairly constant for all of the runs. At the end of the reaction period, the bomb was removed from the bath and quickly cooled under a jet of water. The contents of the bomb were filtered, and the residue was washed, according to the method described by Bray and Peterson.[4] The black liquor was immediately analyzed for its sodium hydroxide content, from which data the percentage of chemical consumed could be calculated. The pulps were tested for the following constituents; cellulose, lignin, and in some cases for pentosans. The quantity of chlorine consumed in isolation of the cellulose was also determined.

The accumulated data are reported in Table I. From these data a number of relationships have been established for the alkaline pulping of extracted long leaf pine. These relationships check closely with those previously established by the Forest Products Laboratory for spruce. The data for 200 deg. C., however, differs noticeably from that of the other temperatures, a constant yield being reached after two hours, indicating that the removable impurities are separated within a short time after the beginning of the cook. Further heating does not decrease the remaining lignin faster than the cellulose; as a matter of fact, the value for lignin increases to a considerable degree as the digestion period at this high temperature increases. The values for K are the velocity constants for a

[4] M. W. Bray and C. E. Peterson, Industrial & Engineering Chemistry, 19, 371, March, 1927.
[5] M. W. Bray, Paper Trade Journal, 87, No. 25, 59, December 20, 1928.

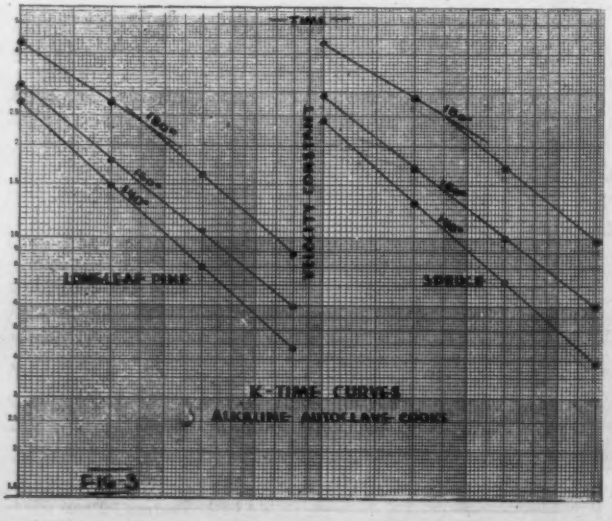


FIG 3

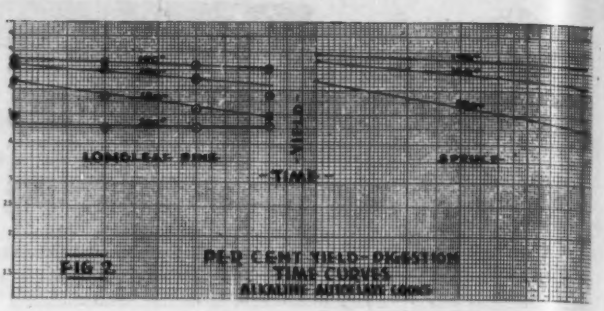


FIG 2.

monomolecular reaction and calculated according to the equation:

$$(1)\qquad K=\frac{2.3025}{T}\log\frac{(m)}{(m-x)},$$

in which m is the weight of the wood taken and x is the weight of the pulp formed.

Four series of tests of five runs each were made at temperatures of 140, 160, 180, and 200 degrees C. with a view to determining the influence of variations in time and temperature on the amounts of pulp produced and the effect on the composition of the pulp. All other operating conditions throughout the runs were maintained constant.

TABLE I
Experimental Data Obtained in the Alkaline Pulping

Temp. °C	Time	Yield Pulp %	K	NaOH consumed (on wood) %	Lignin (on wood) %	Cellulose (on wood) %	Cellulose (on pulp) %
140	34 min.	79.3	0.4099	7.7	25.1	49.0	67.8
	1 hr.	75.9	.2753	8.3	23.7	46.7	61.5
	2 hrs.	74.3	.1484	8.9	23.0	46.7	62.8
	4 hrs.	72.7	.0799	9.3	21.8	46.7	64.3
	8 hrs.	70.6	.0435	10.3	20.4	46.1	65.3
160	32 min.	76.2	0.5090	8.3	24.3	48.3	63.3
	1 hr.	72.8	.3177	10.2	21.8	47.6	65.2
	2 hrs.	69.9	.1793	10.4	20.0	47.4	67.8
	4 hrs.	65.7	.1051	10.9	18.0	48.0	73.2
	8 hrs.	57.4	.0695	13.1	14.4	43.2	72.5
180	37 min.	70.4	0.5695	9.6	20.5	47.4	67.3
	1 hr.	64.6	.4362	11.5	16.0	47.3	73.2
	2 hrs.	57.6	.2762	12.5	13.1	43.9	76.3
	4 hrs.	52.4	.1614	14.3	11.2	40.6	77.5
	8 hrs.	49.3	.0883	16.5	10.3	40.0	81.2
200	39 min.	56.1	0.8899	12.5	12.6	43.4	77.3
	1 hr.	49.5	.7028	15.1	8.2	42.6	86.1
	2 hrs.	45.5	.3939	16.1	6.5	39.5	87.0
	4 hrs.	45.8	.1949	17.1	8.8	36.3	78.9
	8 hrs.	46.4	.0961	18.8	12.2	34.7	74.8

Discussion of Results

From the experimental data thus obtained, certain relationships and conclusions may be drawn. These relationships will be considered separately and the results compared with those of similar experiments previously described for spruce.[5]

(1) Effect of Time of Digestion on Yield of Pulp. (a) Fig. 1 shows graphically the effect of time of digestion on the yields of pulp obtained for the several temperatures studied. The similarity in shape of the curves for spruce and long leaf pine indicates that the reaction for the two species are analogous, that these reactions proceed very rapidly at the beginning of the cook but tend to decrease in speed as the more reactive non-cellulosic components are removed, and that an increase in time of pulping with the first three series greatly enhances the quality of the pulp. (b) The amount of alkali consumed is directly related to the amount of wood dissolved (Fig. 4). For the three lower temperatures this relationship is approximately linear. (c) An increase in temperature increases the rate of the pulping reaction. Reference to Fig. 1 will bear out this conclusion; that is, the eight hour yield at 140 deg. C. is approximately the same as the two hour yield at 160 deg. C., representing a four fold increase in rate for

a 20 degree rise in temperature. Similar relations exist between the eight hour cook at 160 deg. C. and the two hour cook at 180 deg. C., and also between the eight hour cook at 180 deg. C. and the two hour cook at 200 deg. C. The 140. 160, and 180 degree curves indicate an approach to a constant yield; the 200 degree curve shows this definitely. It is possible to generalize that the higher the temperature, the sooner this constant value is reached.

(2) Rate of Pulping. In Fig. 2, the yields for both spruce (Bray) and for long leaf pine have been plotted on logarithmic paper against the time digestion. The results thus plotted indicate that the rate of pulping is a logarithmic function of the time of reaction.

(3) Relation between the Monomolecular Velocity Constants K and the Times of Reaction. In Fig. 3, the monomolecular velocity constants for a given temperature have been plotted against time of digestion; the results obtained previously for spruce have been included for purposes of comparison.[8] It will be observed that these "velocity constant" values fall on straight lines for any given temperature of pulping for pulp yields above approximately 50 per cent. Below this yield point, a change in slope occurs.

(4) Calculation of Yields for Variable Pulping Times. These curves may be used for calculating the yield of pulp for any given time of puiping, providing the reaction conditions give a yield above 50 per cent. Applying the mathematical treatment outlined by Bray,[8] we have calculated the value of K for the eight-hour digestion at 140 deg. C. From this value of K the calculated yield should be 70.63 per cent, while the yield found by experiment was 70.6 per cent. In a similar manner yields of pulp, resulting from the action of sodium hydroxide solution on extracted long leaf pine, may be calculated with the same degree of accuracy as were obtained for spruce.

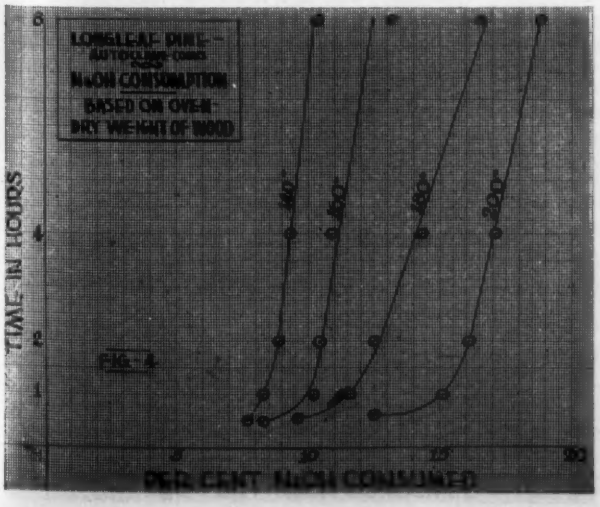
(5) Relation between Velocity Constant and Time. The same relationship as regards velocity constant plotted against time of pulping and also of the slope of these velocity constant lines plotted against K value for one hour of digestion seems to exist for long leaf pine as for spruce; therefore, it is possible to arrive at it mathematically in the following manner:

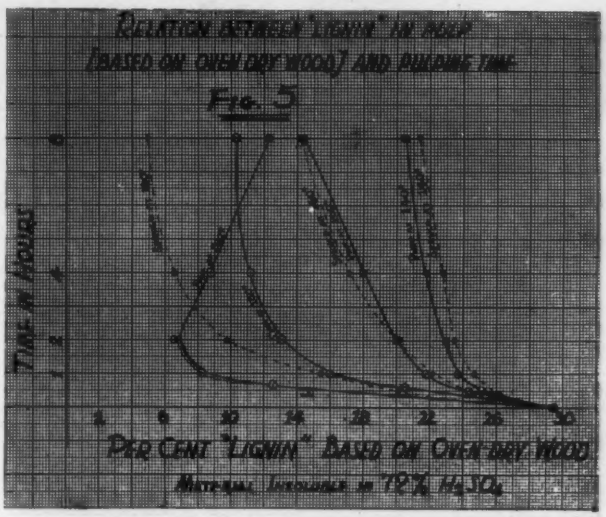
Reviewing what was done on spruce. The velocity constant K was calculated according to the following equation for a monomolecular reaction:

$$(1)\quad K=\frac{2.3025}{T}\log\frac{(m)}{(m-x)},$$

where T equals the time of digestion in hours, m equals 100 per cent and (m — x) the per cent of yield.

These values for K were plotted for each temperature on log-graph paper against the time of pulping in hours, with the result





that a set of straight lines, one for each temperature, were obtained.

The slopes of these lines were calculated, and then obviously by substitution in

$$(2)\quad \log K=\log C + a \log T,$$

(the expression of the hyperbolic equation $K.T^a = C$ in logarithmic form), where C equals K at one hour digestion or intercept and "a" equals (—) slope & lines, it was possible to determine K for any digestion time, and this in turn would give the per cent yield for any time at any of the temperatures for which digestions were conducted.

Next, the slopes of the K-time lines were plotted on semi-log paper against the K value at one hour digestion or C value This gave a straight line, the equation of which is:

$$(3)\quad Y = AE^{-bx}$$

where A equals intercept on vertical axis, E the base of logarithms (Briggsian) 10, "b" the slope of line, and "x" equals "a" plus the slope of K-time curves.

$$(4)\quad Y=AE^{-bx}=\frac{A}{+bx}{10}$$

Substituting this expression for C in $K.T^a = C$ and solving for "a" we get

$$(5)\quad a=\frac{\log A-\log K}{\log T+b\log 10}$$

$$(6)\quad a=\frac{\log \text{intercept}-\log K}{\log T+\text{slope of line}}$$

and by substituting in this equation, it was possible to determine the slope of any K-time line for any definite period of digestion or any time, provided the value for K for some definite period of digestion had previously been determined by experiment for that particular temperature.

Now, a mathematical arrival at values of the slope and intercept of the "a" against "C" curve to substitute in the above equation would be thus:

For some temperature, say 140 deg. C., substitute in log K = log C + a log T for each of the experimental values, and thus it is possible to get several values which may be called a_1; the same for 180° would be called a_2, etc. Take a mean of each of the "a's" then,

$$(7)\quad a_1=\frac{\log \text{intercept}-\log K}{\log T+\text{slope}}$$

$$(8)\quad a_2=\frac{\log \text{intercept}-\log K}{\log T+\text{slope}}$$

Of course, the log K's will be different here, but the intercepts

and slopes are the same. It is thus possible to set up many equations which may be solved simultaneously two by two for slope and intercept, the results being several values of each. By taking a mean of the values, respectively, it is possible to arrive mathematically at the final equation obtained graphically for spruce.

Let a_1 = slope of imaginary K-time curve for 140°
a_2 = slope of imaginary K-time curve for 160°
a_3 = slope of imaginary K-time curve for 180°

Then for 140 deg. C., $\log .1484 = \log .2753 - a_1 \log 2.$
$\log .07988 = \log .2753 - a_1 \log 4.$
$\log .04352 = \log .2753 - a_1 \log 8.$

Solving, we get $-a_1 = .90367$
$.87223$ Mean: $.88766.$
$.88707$

It might be said that by actual plotting, the value was .8875. The mean ($-a_2$) values for 160 deg. C. and the ($-a_3$) values for 180 deg. C. are determined similarly.

If we denote the intercept of the final slope K-time curves ($-C = K$ at one hour digestion curve) as Q and the slope of this as M, then the mean $a_1 = \dfrac{\log Q - \log K}{\log T + \text{slope}}$ (9). Substituting the values observed for K and T at mathematical mean a_1 and doing the same for a_2 and a_3 at 160 and 180 deg. C., we get three groups of equations which may be solved simultaneously two by two (one of one group with one of another) for values of log Q and M. Then taking a mean of these, it was found that:

Mean M = .55473
Mean log Q = 9.92662 — 10

Equation (9) becomes, therefore,

$$(10)\quad a = \frac{(9.92662 - 10) - \log K}{\log T + .55473}$$

By knowing K at one hour digestion for some temperature, it is possible to find the per cent yield for any time at the same temperature. Thus, if we have given K at one hour, then the equation reduces by solving with (1) and (2) to

$$(11)\quad \frac{\log K - \log\left[\dfrac{2.3025}{T}\log\dfrac{(m)}{(m-x)}\right]}{\log T} = \frac{(9.92662 - 10) - \log K}{.55473}$$

As an illustration of the application of this equation, let us take the conditions: T equals one hour at 160°; K equals .31765; wanted, to find the per cent yield of pulp for four hours at the same temperature. Substituting in equation (11):

$$\frac{\log .31765 - \log\left[\dfrac{2.3025}{4}\log\dfrac{100}{\%\ \text{yield}}\right]}{\log 4} = \frac{(9.92662 - 10) - \log .31765}{.55473}$$

Solving, we get a yield of 65.2 per cent as over against the observed yield of 65.67 per cent.

(6) Effect of Temperature on the Cellulose and Lignin Content of the Pulp. The data given in Table I on the lignin and cellulose content of the various pulps have been recalculated on the basis of the percentage loss of lignin and cellulose, and these new calculations are to be found in Table II.

TABLE II.

Per Cent of Original Cellulose and Lignin Remaining in the Pulp.

Temperature deg. C.	Time	Cellulose %	Lignin %
Original Wood		100.0	100.0
140	34 min.	85.3	85.7
	1 hr.	81.3	80.9
	2 hrs.	81.3	78.3
	4 hrs.	81.3	74.4
	8 hrs.	80.3	69.6
160	32 min.	84.2	82.8
	1 hr.	82.9	74.3
	2 hrs.	82.7	68.1
	4 hrs.	83.6	61.3
	8 hrs.	82.4	49.0
180	37 min.	82.7	69.8
	1 hr.	82.5	54.5
	2 hrs.	76.6	44.6
	4 hrs.	70.8	38.1
	8 hrs.	69.8	34.9
200	39 min.	75.6	42.9
	1 hr.	74.3	27.9
	2 hrs.	68.8	22.3
	4 hrs.	63.3	29.9
	8 hrs.	60.5	41.7

In general, it will be seen that the first fifteen to twenty per cent of the cellulose disappears at a rapid rate; this is followed by a disappearance of lignin with cellulose in the pulp remaining constant until cooks at 180 deg. C. are carried out for periods of two hours or longer. At conditions more severe than these, both lignin and cellulose disappear. Under the most severe conditions studied, namely cooking at 200 deg. C. for eight hours, forty per cent of the cellulose in the original wood had been lost.

On the other hand, lignin is dissolved by the cooking liquor rather rapidly even at 140 deg. C. and much more rapidly at elevated temperatures. Attention is called to the lignin values of the 200 degree cooks. Lignin disappears during the first two hours of reaction, the two hour pulp at 200 deg. C. having the lowest percentage of lignin of any of the pulps produced during the entire study. When cooking at 200 degrees is prolonged beyond this point, the percentage of material insoluble in 72 per cent sulfuric acid increases rather suddenly, so that at the end of the eight hour period, there is nearly twice as much of the so-called "lignin" present as in the pulp produced by the two hour cook at the same temperature. These values have been carefully checked a number of times.

In explanation, we suggest the possible formation at high temperatures of cellulose-lignin condensation products which are stable toward the action of 72 per cent sulfuric acid and thus appear as lignin in the analytical method. This is supported by the data in Table I, cellulose (on pulp) determination at 200 deg. C. This value, which had previously increased in all runs progressively with time, increases at first as the lignin disappears but then begins to decrease. Such a change, closely following the increase in "lignin," may in a similar way be due to the formation of the above complex, which is destroyed in the chlorination process and hence does not appear as cellulose. This is being investigated at the present time and we hope to be able to publish additional information within a short time. We do not overlook the possibility of similar substances forming at lower temperatures, although somewhat more slowly, and interfering with the accuracy of the lignin determinations.

Determination of Alpha Cellulose Content

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 17.—The Bureau of Standards has obtained additional evidence that thorough disintegration of paper is necessary in determining its content of alpha cellulose. Papers of varying degrees of hardness were prepared by hand from different kinds of paper-making fibers. The variation in hardness was obtained by varying the degee of hydration in the beating treatment given the fibers. In this way a series of papers having different degrees of hardness were prepared from each kind of fiber. The papers were then tested for alpha cellulose content in the form of cut pieces and in a thoroughly defibered form secured by grinding the paper. In all cases it was found that the harder the paper, the greater was the difference in alpha-cellulose values as measured on the two forms of test specimens.

Results of a study of the effect of the temperature at which the titration is made in determination of copper number, show that the effect within the temperature range 10—40° C. is negligible.

An Inexpensive Consistency Tester

An interesting apparatus for rapidly determining the consistency of beater stocks for the freeness test is now being offered to the paper industry by the Foreign Paper Mills, 72 Duane Street, New York.

This apparatus consists of (1) Water jet air pump of glass (geisler) with adjustable tip and back stroke valve, (2) Filter funnel (Dr. Buchner) with strong porcelain filter plate and erect walls of 100 m/m diameter, with rubber stopper, (3) Suction flask 100 c/m, and (4) Double walled pressure hose, 1 meter long.

To make complete test it is also necessary to have a drying oven and chemical balance to insure absolute accuracy.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts and Bibliography of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

For photostatic copies of articles appearing in the Abstract Section, address the chairman of the Abstract Committee, Dr. Clarence J. West, National Research Council, 21st and B Streets, Washington, D. C. The charge for this service is 25 cents per page. Copies of United States patents may be obtained from the U. S. Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Raw Materials

Peanut-Hull Cellulose. D. F. J. Lynch and Marshall J Goss. Bureau of Chemistry and Soils, Washington, D. C.. Ind. Eng. Chem. 22, 903-907 (Aug. 1930).—An analytical study of peanut hulls was made to determine a possible commercial use for this farm waste. It was found uneconomical as a source for pentosans. The comparatively high crude-fiber content would indicate that the hulls might be used as a source for high-grade cellulose. The optimum conditions were determined for the production of cellulose from peanut hulls by the use of the soda process, the neutral sulphite process, and the sulphate process. Experiments indicated that the best results are obtained with the neutral sulphite process, which gave yields of 40 to 42 per cent of unbleached pulp. By the following treatment this pulp was converted into a product containing over 90 per cent of alpha-cellulose: the ash was lowered to 0.3 per cent by alternate treatment with 0.5 per cent hydrochloric acid and 0.25 per cent caustic soda, with washing after each acid and each alkali treatment; the beta- and gamma-cellulose were removed by heating with a 5 to 7 per cent caustic soda solution on the water bath, or by treating in the cold with a cold 8 to 9 per cent caustic soda solution; after pressing and washing, the pulp was dried at about 40°C to a 5 to 7 per cent moisture content.—A. P.-C.

Microscopic and Chemical Examination of the Tissue of the Bamboo Stalk. Sutezo Oguir and Masaki Nara. Waseda University, Tokyo, Japan. J. Soc. Chem. Ind. (Japan) 33 (Supp. Binding), 236-238 (June 1930).—The authors studied the structure and chemical composition of Moso-chiku *phyllostachys pubescens,* H. Leh.), a species of Japanese bamboo, from the standpoint of cellulose chemistry. The material for the sample was produced in the Miyazaki Prefecture and was three years old. Small pieces of the sample were treated with boiling water for 5 hours, and then with hot alcohol-benzene mixture for 4 hours and the treated pieces were cut and examined under the microscope. The sections showed the presence of bast fiber bundles, parenchyma and vessels, and the bast fiber bundles being most abundant in the outer layers. Examination of cross sections after chlorination and treatment with sodium sulphite solution to remove the lignin, and also after treatment with 72 per cent sulphuric acid to remove some of the cellulose, showed that a large portion of the lignin is in the bast fiber bundles. Fiber measurements gave the following results: outer part of the stalk, length 0.38 to 1.53 mm., diameter 0.0100 to 0.019 mm.; inner part of the stalk, length 0.86 to 2.23 mm., diameter 0.011 to 0.021 mm. Determinations carried out on bamboo powder passing a 20-mesh (percm.) but retained on a 40-mesh sieve, gave the following results, calculated on the dry basis: ash 1.01 per cent, protein (N x 6.25) 3.38 per cent, total water extract 7.50 per cent (cold water 5.33 per cent, boiling water 2.17 per cent), successive extractions with benzene 0.71 per cent, alcohol 6.67 per cent, boiling water 2.82 per cent, cellulose 35.58 per cent, lignin 29.85 per cent, pentosans 26.28 per cent.—A.P.-C.

Raw Materials for the Manufacture of Paper in China. Wochbl. Papierfabr 61, No. 11, 348-349 (March 15, 1930).—Descriptions of methods of paper manufacture from straw, bamboo and certain grasses. J.F.O.

Forests in the Sense of Political Economy. Dannecker, Wochbl. Papierfabr. 61, No. 16,513 (April 19, 1930).—The German forests consist of 12.7 million hectars, "1 hectar equals 2.471 acres." The total yearly yield of soft and hard wood is 53 million solid cubic meters, whose present day value is about 750 million marks. The German forests can supply only two thirds of the wood required in Germany. Further facts and figures given.—J.F.O.

Concerning the Down of Kendyr. N. L. Karawajew and P. N. Odinzow. Papierfabr. 28, No. 9, (March 2, 1930).—In lower middle Asia, a plant grows whose excellent fibers holds a great future for the textile industry. This plant greatly resembles the cotton plant in its pod seed and down. A complete analysis made and reported, the down, containing about 37 per cent of pure cellulose. Conclusions drawn is that it resembles straw in some respects, but in cooking with soda, it consumes more caustic soda and heat. The Kendyr down cannot be used in nitration. The down is suitable for sulphite cooking.—J.F.O.

Arrangement for the Recovery of Coconut Fibers. Haake, Berlin, Germany. German pat. 489,478, Dec. 6, 1927.—The coconut fibers are separated from its previously softened and rolled hulls by the action of spikes, arranged in a series of rings on the surface of a fast rotating drum located in a housing; in the manner of a rag duster.—J.F.O.

Arrangement for the Separation of Coarse Fibers. Wenzel Konig, Leipzig, Germany, German pat. 488,819. Nov. 14, 1927.—The invention concerns an arrangement for the separation of the bast fibers from the roots which are led in bundles on conveyors under a circular saw between a pair of tension discs.—J.F.O.

Process for the Utilization of Sawdust. Erdol und Kohle-Verwertungs Aktiengesellschaft and Dr. Edgar Erlenbach, Berlin, Germany. German pat. 490,401, (August 19, 1925).—The sawdust is subjected to heat and pressure in the presence of an aqueous medium, under recovery of the decomposition products thus formed. The process is characterized in that the sawdust mixed with water is pumped through the reaction zone.—J.F.O.

Process for the Recovery of Spinnable Fibers of Fine Garn From Hard Fibers. Oswald Richter and Gustan Schmide, Brunn, Germany. German pat. 490,293, Nov. 15, 1924.—The hard fibers are first allowed to soak in water or they are treated in suitable acting baths whereby the so pre-treated fibers, are, if necessary, put through a mechanical treatment, after a previous wash, in a still moist condition, i. e., through a scrapper. According to claim No. 2 the moist, diminuated fibers are subjected, after drying, to a heavy pressing, i. e., in a calender. According to claim No. 3 the fibers are cooked in a liquor and, if necessary, chlorinated.—J.F.O.

Process for the Recovery of Paper Material from Old Printed Papers. Dr. Louis Grenandier, Paris, France. German pat. 491,656 (Jan. 28, 1927).—The cut up paper mass is cooked

in the usual manner, at boiling temperature with a solution of soda of a concentration of 1 to 1000 for the purpose of saponifying the oil contained in the printing color. During or after the cooking, the soap formed is separated off by making it unsoluble, or by decomposing it.—J.F.O.

De-inking Waste Newspaper Material, Etc. W. Lewis. Eng. pat. 321,826, Nov. 13, 1928.—The material is macerated and then agitated and squeezed alternately in the presence of water glass, with or without addition of caustic soda and "Pearline" washing powder.—A.P.-C.

Cellulose and Lignin

Cellulose in the Light of the X-Rays. William Bragg. Cellulose 1, 80-83 (April), 110-113 (May 1930).—An address describing what x-ray investigations have revealed regarding the structure of cellulose.—A.P.-C.

Chemistry of the Polysaccharides with Special Reference to Cellulose and the Hemi-Celluloses. Louis E. Wise. Syracuse University, Syracuse, N. Y. Cellulose 1, 68-76 (April 1930).—A review.—A.P.-C.

Studies of Reactions Relating to Carbohydrates and Polysaccharides. The Constitution of Alkali Cellulose. Edmund G. V. Percival, A. C. Cuthbertson and Harold Hibbert. McGill University, Montreal. J. Am. Chem. Soc. 52, 3257-3269 (Aug. 1930).—The absorption of sodium hydroxide by cellulose was studied over a wide range of concentration at 25°C. by a carefully controlled method of washing, thus avoiding the inaccuracies associated with the use of indicators. Evidence of chemical compound formation between alkali concentrations of 12.5 per cent and 21.5 per cent by weight was found. The compound may be regarded as resulting from the interaction of one molecule of sodium hydroxide with each anhydroglucose unit of the cellulose. There would seem to be no definite proof of the existence of the compound $(C_6H_{10}O_5)_2NaOH$ as the main product formed. The absorption of water by cellulose during the action of the alkali solutions was studied, being calculated from a knowledge of the "direct" and "indirect" figures. Maximum absorption of water is shown to occur at a concentration of alkali of about 14 per cent by weight at 25°C., which corresponds with that concentration at which maximum swelling has been observed by other workers. Direct quantitative analysis of a soda cellulose which had been washed once with alcohol leads to the assumption that the product formed may be the result of an equilibrium reaction of the nature of $(C_6H_{10}O_5 \cdot NaOH\ x \rightleftarrows (C_6H_9O_5Na)\ x + xH_2O$. The nature of the structure of each of these compounds is uncertain, but possibly in each case inter-micellary and residual-valence forces are involved.—A.P.-C.

Studies on Reactions Relating to Carbohydrates and Polysaccharides. XXXI. The Behavior of Cellulose Toward Solutions of Aluminum Salts. Edmund G. P. Percival, A. C. Cuthbertson and Harold Hibbert. McGill University, Montreal. J. Am. Chem. Soc. 52, 3448-3456 (Aug. 1930).—The adsorption from aluminum salt solutions by different celluloses was studied and by successive adsorption experiments it was shown that small but definite amounts of $Al(OH)_3$ are adsorbed by ash-free cellulose, that is, a cellulose free from constituents capable of "exchange." The adsorption was found to be made up of two effects, the "natural" adsorption and the "exchange" adsorption. The "natural" adsorption depends on the dilution and pH value of the solution. The "exchange" adsorption seems to depend on the mineral content of the original ash, principally on account of calcium and iron present. The mechanism of the hydrolysis of aluminum acetate is shown to be the same as for the chloride and sulphate solutions, while the adsorption increases with increasing hydrolysis, being highest for the acetate.—A.P.-C.

Differences Between the State of Dispersion of Isolated Wood Cellulose and Cotton Cellulose in Cuprammonium Solvent. Alfred J. Stamm. Forest Products Laboratory, Madison, Wis. J. Am. Chem. Soc. 52, 3062-3067 (Aug 1930).—The nature of the dispersion in cuprammonium solvent of several different isolated wood celluloses was compared with that of cotton cellulose with the aid of the ultracentrifuge. The cotton celluloses are mondisperse with but a very small amount of a considerably finer material present. The amount of this more finely dispersed material present seems to decrease with the increase in the alpha-cellulose content. The isolated wood cellulose showed the presence of a material of the same molecular dispersion as that of cotton cellulose, together with a material of one-half of this molecular weight, and molecular species of still fine dispersion. The data thus indicate that the difference between isolated wood cellulose and cotton cellulose dissolved in cuprammonium solvent is at least partially a matter of difference in the degree of association of similar structural building units.—A.P.-C.

State of Dispersion of Cellulose in Cuprammonium Solvent as Determined by Ultra-Centrifuge Methods. Alfred J. Stamm. Forest Products Laboratory, Madison, Wis. J. Am. Chem. Soc. 52, 3047-3062 (Aug. 1930).—The nature of the dispersion of pure cotton linters alpha-cellulose in cuprammonium solvent was studied with the aid of the ultracentrifuge. The cellulose is monodisperse and has a molecular weight of 55,000 ± 7000. On a copper-free basis it is 40,000 ± 5000. The particles must be made up of from 200 to 260 of the simple $C_6H_{10}O_5$ units. The specific sedimentation velocity of the dispersed cellulose increases slightly with a decrease in concentration while the diffusion constant increases quite appreciably. This is explained on the basis of the gelation of the system. Oxygen of the air is shown to cause a degradation of the solution by decreasing the particle size. The cuprammonium solvent is shown to contain some colloidally dispersed particles. Their sedimentation velocity ranges from ten to several hundred times that of the cellulose particles. Their size ranges from 6.5 mm. in diameter to more than 20.0 mm. A single run made on a viscose solution indicated that cellulose xanthate dissolved in a dilute alkali solution has approximately the same molecular weight as the above cellulose.—A.P.-C.

Dispersion of Cellulose and Cellulose Derivatives. S. E. Sheppard. J. Phys. Chem. 34, 1041-1052 (1930).—Cellulose in the form of cotton fibers or wood pulp can be dispersed in inert organic liquids to give finely-divided suspensions by wet grinding in pebble or ball mills. A small fraction becomes colloidally dispersed. Different rates of dispersion obtained with different organic liquids. The viscosities of the solutions in Schweitzer's reagent fall with increasing subdivision, and the higher the initial viscosity of the cellulose the longer is the time required for disintegration to a given degree of dispersion. When grinding and drying are carried out in an atmosphere of carbon dioxide the copper number remains unchanged. The dispersions produced by mechanical disintegration in organic liquids behave almost identically with the hydrocellulose produced by the action of mineral acids on native cellulose. The modified properties include (a) diminished cuprammonium viscosity, (b) increased solubility in 10 per cent potassium hydroxide solution, (c) increased reactivity on esterification, and (d) increased adsorption of basic dyes. Small differences in reactivity, however, can be detected in the degrated celluloses of the same degree of mechanical dispersion produced by the action of acids in water or glacial acetic acid or by the action of organic liquids in the mill.—A.P.-C.

Hygroscopic Moisture of Cellulose. Sutezo Oguri and Masaaki Nara. Waseda University, Tokyo. J. Soc. Chem. Ind. Japan 33 (Supp. Binding), 267-270 (July, 1930).—The authors determined the maximum moisture content on the following materials, which were placed in a closed vessel saturated with water vapor at constant temperatures: (a) standard cotton cellulose prepared by the method proposed by the special committee of the American Chemical Society (b) bamboo cellulose

isolated by chlorination from ground bamboo and purified with 17.5 per cent caustic soda solution (c) wood cellulose extracted from chemical wood pulp by using the method of the determination of alpha-cellulose, (d) nitrocellulose obtained by nitration of the standard cotton cellulose to a nitrogen content of 10.78 per cent. The results are presented graphically, and the following conclusions are drawn; (1) Equilibrium is not independent of the temperature, an increase in temperature being accompanied by a diminution of water content, and the equilibrium depends also on the origin of the cellulose. The equilibrium moisture of the standard cotton cellulose is estimated at 16.8 per cent and 15.2 per cent (on the dry basis) at 20° and 30° C., respectively. These values are less than those of bamboo cellulose and wood cellulose. The difference between the cotton cellulose and the others may be characterized by a structure of cellulose which brings about a different absorption. (2) The hydroxyl group in the cellulose molecule has special attraction for water as shown by the fact that the amount of equilibrium moisture of the original cotton cellulose is more than that of the nitrocellulose. (3) When cellulose is exposed to a saturated vapor, it requires considerable time to attain complete equilibrium. From this it may be seen that the structure of cellulose is very complex. (4) The form of the curves representing the velocity of saturation with moisture exhibit a close resemblance with the curve of velocity of adsorption. (5) Probably there are three kinds of moisture in cellulose, such as adsorption moisture, combined moisture and adsorption moisture. Hence, it may said that the saturation of cellulose by moisture is a combined effect of sorption and chemical combination.—A.P.-C.

Concerning the Affinity of Cellulose Hydrate for Water and Alcohol. R. O. Herzog, Direktor des Kaiser-Wilhelm-Institut für Faserstoffchemie. Wochbl, Papierfabr. 61, No. 17, 541-3 (April 26, 1930).—When water or steam comes in contact with dry cellulose, the water first penetrates the hollow spaces between the micella, which are larger in cellulose hydrate than in cellulose in its native state. In the second phase the water is bound with the cellulose substance and enters the micelli. It is taken for granted that the strength of the fiber is so much less, the wider the capillary are and the less the cohesion within the micell through the inhibition of water.—J.F.O.

Progress on the Subject of High Molecular Compounds. R. O. Herzog, Zellstoff Papier 10, No. 3, 169-170 (March, 1930).—In colloidal solutions of high molecular substances, it is important to distinguish between molecular dispersion, to which belongs the example of the homo dispersion of aqueous solutions of egg albumin and the micellar dispersion solution which for example comprises the esters and ethers of cellulose.—J.F.O.

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Alkaline Processes

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in the usual manner, at boiling temperature with a solution of soda of a concentration of 1 to 1000 for the purpose of saponifying the oil contained in the printing color. During or after the cooking, the soap formed is separated off by making it unsoluble, or by decomposing it.—J.F.O.

De-inking Waste Newspaper Material, Etc. W. Lewis. Eng. pat. 321,826, Nov. 13, 1928.—The material is macerated and then agitated and squeezed alternately in the presence of water glass, with or without addition of caustic soda and "Pearline" washing powder.—A.P.-C.

Cellulose and Lignin

Cellulose in the Light of the X-Rays. William Bragg. Cellulose 1, 80-83 (April), 110-113 (May 1930).—An address describing what x-ray investigations have revealed regarding the structure of cellulose.—A.P.-C.

Chemistry of the Polysaccharides with Special Reference to Cellulose and the Hemi-Celluloses. Louis E. Wise. Syracuse University, Syracuse, N. Y. Cellulose 1, 68-76 (April 1930).—A review.—A.P.-C.

Studies of Reactions Relating to Carbohydrates and Polysaccharides. The Constitution of Alkali Cellulose. Edmund G. V. Percival, A. C. Cuthbertson and Harold Hibbert. McGill University, Montreal. J. Am. Chem. Soc. 52, 3257-3269 (Aug. 1930).—The absorption of sodium hydroxide by cellulose was studied over a wide range of concentration at 25°C. by a carefully controlled method of washing, thus avoiding the inaccuracies associated with the use of indicators. Evidence of chemical compound formation between alkali concentrations of 12.5 per cent and 21.5 per cent by weight was found. The compound may be regarded as resulting from the interaction of one molecule of sodium hydroxide with each anhydroglucose unit of the cellulose. There would seem to be no definite proof of the existence of the compound $(C_6H_{10}O_5)_2NaOH$ as the main product formed. The absorption of water by cellulose during the action of the alkali solutions was studied, being calculated from a knowledge of the "direct" and "indirect" figures. Maximum absorption of water is shown to occur at a concentration of alkali of about 14 per cent by weight at 25°C., which corresponds with that concentration at which maximum swelling has been observed by other workers. Direct quantitative analysis of a soda cellulose which had been washed once with alcohol leads to the assumption that the product formed may be the result of an equilibrium reaction of the nature of $(C_6H_{10}O_5 \cdot NaOH\ x \rightleftarrows (C_6H_9O_5Na)\ x + xH_2O$. The nature of the structure of each of these compounds is uncertain, but possibly in each case inter-micellary and residual-valence forces are involved.—A.P.-C.

Studies on Reactions Relating to Carbohydrates and Polysaccharides. XXXI. The Behavior of Cellulose Toward Solutions of Aluminum Salts. Edmund G. P. Percival, A. C. Cuthbertson and Harold Hibbert. McGill University, Montreal. J. Am. Chem. Soc. 52, 3448-3456 (Aug. 1930).—The adsorption from aluminum salt solutions by different celluloses was studied and by successive adsorption experiments it was shown that small but definite amounts of $Al(OH)_3$ are adsorbed by ash-free cellulose, that is, a cellulose free from constituents capable of "exchange." The adsorption was found to be made up of two effects, the "natural" adsorption and the "exchange" adsorption. The "natural" adsorption depends on the dilution and pH value of the solution. The "exchange" adsorption seems to depend on the mineral content of the original ash, principally on account of calcium and iron present. The mechanism of the hydrolysis of aluminum acetate is shown to be the same as for the chloride and sulphate solutions, while the adsorption increases with increasing hydrolysis, being highest for the acetate.—A.P.-C.

Differences Between the State of Dispersion of Isolated Wood Cellulose and Cotton Cellulose in Cuprammonium Solvent. Alfred J. Stamm. Forest Products Laboratory, Madison, Wis. J. Am. Chem. Soc. 52, 3062-3067 (Aug 1930).—The nature of the dispersion in cuprammonium solvent of several different isolated wood celluloses was compared with that of cotton cellulose with the aid of the ultracentrifuge. The cotton celluloses are mondisperse with but a very small amount of a considerably finer material present. The amount of this more finely dispersed material present seems to decrease with the increase in the alpha-cellulose content. The isolated wood cellulose showed the presence of a material of the same molecular dispersion as that of cotton cellulose, together with a material of one-half of this molecular weight, and molecular species of still fine dispersion. The data thus indicate that the difference between isolated wood cellulose and cotton cellulose dissolved in cuprammonium solvent is at least partially a matter of difference in the degree of association of similar structural building units.—A.P.-C.

State of Dispersion of Cellulose in Cuprammonium Solvent as Determined by Ultra-Centrifuge Methods. Alfred J. Stamm. Forest Products Laboratory, Madison, Wis. J. Am. Chem. Soc. 52, 3047-3062 (Aug. 1930).—The nature of the dispersion of pure cotton linters alpha-cellulose in cuprammonium solvent was studied with the aid of the ultracentrifuge. The cellulose is monodisperse and has a molecular weight of 55,000 ± 7000. On a copper-free basis it is 40,000 ± 5000. The particles must be made up of from 200 to 260 of the simple $C_6H_{10}O_5$ units. The specific sedimentation velocity of the dispersed cellulose increases slightly with a decrease in concentration while the diffusion constant increases quite appreciably. This is explained on the basis of the gelation of the system. Oxygen of the air is shown to cause a degradation of the solution by decreasing the particle size. The cuprammonium solvent is shown to contain some colloidally dispersed particles. Their sedimentation velocity ranges from ten to several hundred times that of the cellulose particles. Their size ranges from 6.5 mm. in diameter to more than 20.0 mm. A single run made on a viscose solution indicated that cellulose xanthate dissolved in a dilute alkali solution has approximately the same molecular weight as the above cellulose.—A.P.-C.

Dispersion of Cellulose and Cellulose Derivatives. S. E. Sheppard. J. Phys. Chem. 34, 1041-1052 (1930).—Cellulose in the form of cotton fibers or wood pulp can be dispersed in inert organic liquids to give finely-divided suspensions by wet grinding in pebble or ball mills. A small fraction becomes colloidally dispersed. Different rates of dispersion obtained with different organic liquids. The viscosities of the solutions in Schweitzer's reagent fall with increasing subdivision, and the higher the initial viscosity of the cellulose the longer is the time required for disintegration to a given degree of dispersion. When grinding and drying are carried out in an atmosphere of carbon dioxide the copper number remains unchanged. The dispersions produced by mechanical disintegration in organic liquids behave almost identically with the hydrocellulose produced by the action of mineral acids on native cellulose. The modified properties include (a) diminished cuprammonium viscosity, (b) increased solubility in 10 per cent potassium hydroxide solution, (c) increased reactivity on esterification, and (d) increased adsorption of basic dyes. Small differences in reactivity, however, can be detected in the degrated celluloses of the same degree of mechanical dispersion produced by the action of acids in water or glacial acetic acid or by the action of organic liquids in the mill.—A.P.-C.

Hygroscopic Moisture of Cellulose. Sutezo Oguri and Masaaki Nara. Waseda University, Tokyo. J. Soc. Chem. Ind. Japan 33 (Supp. Binding), 267-270 (July, 1930).—The authors determined the maximum moisture content on the following materials, which were placed in a closed vessel saturated with water vapor at constant temperatures: (a) standard cotton cellulose prepared by the method proposed by the special committee of the American Chemical Society (b) bamboo cellulose

isolated by chlorination from ground bamboo and purified with 17.5 per cent caustic soda solution (c) wood cellulose extracted from chemical wood pulp by using the method of the determination of alpha-cellulose, (d) nitrocellulose obtained by nitration of the standard cotton cellulose to a nitrogen content of 10.78 per cent. The results are presented graphically, and the following conclusions are drawn; (1) Equilibrium is not independent of the temperature, an increase in temperature being accompanied by a diminution of water content, and the equilibrium depends also on the origin of the cellulose. The equilibrium moisture of the standard cotton cellulose is estimated at 16.8 per cent and 15.2 per cent (on the dry basis) at 20° and 30° C., respectively. These values are less than those of bamboo cellulose and wood cellulose. The difference between the cotton cellulose and the others may be characterized by a structure of cellulose which brings about a different absorption. (2) The hydroxyl group in the cellulose molecule has special attraction for water as shown by the fact that the amount of equilibrium moisture of the original cotton cellulose is more than that of the nitrocellulose. (3) When cellulose is exposed to a saturated vapor, it requires considerable time to attain complete equilibrium. From this it may be seen that the structure of cellulose is very complex. (4) The form of the curves representing the velocity of saturation with moisture exhibit a close resemblance with the curve of velocity of adsorption. (5) Probably there are three kinds of moisture in cellulose, such as adsorption moisture, combined moisture and adsorption moisture. Hence, it may said that the saturation of cellulose by moisture is a combined effect of sorption and chemical combination.—A.P.-C.

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tions developed, have resulted in strong kraft pulps from southern yellow pines that can be bleached to a good white color without material loss in strength properties.—A.P.-C.

Improvement in the Cooking of Wood Pulp. Arthur Stephan Klein. Paper Industry 12, 679-682 (July, 1930).—Observations on direct and indirect heating and forced circulation in European pulp mills, describing the principal systems in use. As far back as 30 years ago, there were cylindrical sulphate digesters that were heated directly by steam and equipped with pumps for the forced circulation of the cooking liquor, so that the principle of forced circulation in connection with pumps or injectors cannot be patented, only new details of construction being patentable. The Morterud and Schauffelberger systems are in use for the kraft pulping process, and the morterud (adapted for both direct and indirect cooking), Wallin and Brobeck systems for the sulphite process.—A.P.-C.

Cooking Liquor. Linn Bradley and Edward P. McKeefe assignors to Bradley-McKeefe Corp. Can. pat. 300,548, (May 27, 1930).—Residual liquor from an acid sulphite cooking process, in which the cooking liquor is a mixture of sodium sulphite and sodium bisulphite, and which already contains a high ratio of sodium to sulphur, is treated with some alkaline soda compound and concentrated, and the resulting product subjected to a reducing furnacing treatment to form a product containing a considerable proportion of the sodium as sodium sulphide and the remainder as sodium carbonate. A solution of the sodium compounds of the furnace product is prepared which is utilized as a cooking liquor in the sulphide type of cooking process. Residual liquor from the latter cooking operation is concentrated and furnished to decompose organic compounds and to form a product containing the soda largely as carbonate. A solution of the resulting sodium compounds is prepared and subjected to a regulating sulphiting treatment to regenerate a suitable cooking liquor containing sodium sulphite and sodium bisulphite.—A.P.-C.

Cementitious Products from Digestion of Cellulosic Materials. Robert A. Marr assignor to Ramar Syndicate, Inc., U. S. pat. 1,762,481. (June 10, 1930.)—Material such as straw or wood is digested in a solution containing sulphates, such as those of zinc, potassium and sodium, in a concentration below 5 per cent, followed by pulping and separation, in substantial part at least, of connective matter from the pulp and its isolation and molding.—A.P.-C.

Using Spent Lime-Cooking Liquor in Paper Manufacture. Albert L. Clapp. U. S. pat. 1,758,247, (May 13 1930).—Cellulosic material such as manila rope is cooked and beaten in the presence of the spent lime-cooking liquor and the resulting material is run off on a paper machine and the paper formed is treated with sodium silicate solution. It is resistant to water and grease.—A.P.-C.

By-Products from Black Liquor. Edouard Urbain. Fr. pat. 676,710, (Oct. 15, 1928).—Black liquors are systematically washed with organic solvents such as benzine at about 60°C. to extract waxes, resins and other products. The waxes, etc., are separated from the solvent in known manner.—A.P.-C.

Pulping Raw Cellulosic Material. George A. Richter assignor to Brown Co. Can. pat. 299,299, (April 15, 1930).—Raw cellulosic material is digested under atmospheric pressure at about 250° to 350° F. in an alkaline cooking liquor comprising a mixture of water, glycerine and a fiber-liberating chemical in amount substantially similar to that of a kraft cooking liquor. The pulp is separated from the spent liquor, the glycerine is steam-distilled, and the inorganic content of the remaining aqueous liquor is recovered for the pre-preparation of fresh cooking liquor.—A.P.-C.

Treating Residual Liquors from Alkaline Digestion of Cellulosic Materials. Linn Bradley and Edward P. McKeefe assignors to Bradley-McKeefe Corp. U. S. pats. 1,754,207, and 1,754,208 (April 8, 1930).—*No. 1,754,207*—A liquor such as that from the digestion of wood with soda solution is treated with a sulphate such as sodium bisulphate to remove organic material, and the resulting solution without calcination is treated to produce a caustic alkali solution. *No. 1,754,208*—describes a process of treating black liquor by furnacing to obtain a product containing sodium carbonate and carbon with a minimum loss of sodium compounds with the furnace gases, treating the product with aqueous liquor to dissolve the sodium compounds, and causticizing the solution in a two-stage treatment, first with a less and then with a greater proportion of slaked lime than is chemically equivalent to the sodium carbonate present, with sludge separation between the two stages of the treatment. Washings from the separated sludge are further used in the process.—A.P.-C.

Recovering Alkali from Black Ash Residues. Ralph H. McKee. U. S. pat. 1,753,128, (April 1, 1930).—Excess water is removed by filtration from a mixture of black ash residue from soda pulp mills and calcium carbonate sludge from reaction of sodium carbonate solution and milk of lime, and the resulting product is passed through a heated zone.—A.P.-C.

Process of Making Pulp. Sidney D. Wells assignor to Paper Mill Laboratories, Inc. U. S. pat. 1.746,451, (Feb. 11, 1930).—Cereal straw or other vegetable fibrous material is digested with a chemical cooking agent such as lime. After cooking, it is mechanically disintegrated and (in lieu of washing) is treated with an acid neutralizing agent such as sulphurc acid or sodium bisulphite, the reaction products of which are retained in the mass.—A.P.-C.

Non-Fibrous Cellulose Flour from Cottonseed Hulls. Elton R. Darling assignor to Cornstalk Products Co. U. S. pat. 1,751,267, (March 18, 1930).—A product which is suitable for nitration or use as a filler in foods, medicines, etc., is prepared by heating cottonseed hulls for a suitable time and under a suitable pressure (which may be about one hour and 10 pounds per sq. in., respectively), in a suitable oxidizing solution to effect oxidation of constituents other than the cellulose, followed by washing with water, heating under pressure with caustic soda and sodium sulphite for removal of the oxidized materials, further washing, bleaching, washing and drying.—A.P.-C.

Process for the Manufacture of Alpha Cellulose. Wolff & Co. and Richard Weingand, Walsrode, Germany. German pat. 492,063 Kl. 1 Gr. 6.—Cellulose, freed from hemicellulose by alkali treatment, is treated with a salt solution or a similar acting liquid.—J.F.O.

Arrangement on the Apparatus Used for the Heating of Liquors for Cooking Pulp. E. Morterud, Torderoed, Norway. Norwegian pat. 47,257 (Feb. 9, 1929).—The heating of the agitated liquor occurs indirectly and in such a manner that a certain device maintains a determined temperature difference between the heating medium and the liquid, to prevent the formation of incrustants on the heating surfaces.—J.F.O.

Process for the Manufacture of a Substance, Similar to Ordinary Stock, from the Waste Products of the Wood Plant Fibers or From Tannery Waste. Charles Zarfel, Frohburg, Germany, and W. Stroever, Metz, France. Finnish pat. 12,636 (Oct. 18, 1927).—The material is treated for several hours with a 3 to 4 per cent solution of caustic soda, washed, ground and formed into plates, discs, plastic bodies, etc. The hardness of the mass can be effected by the addition of paper stock.—J.F.O.

Steam Consumption in a Sulphate Mill. Dr. K. Wochbl. Papierfabr. 61, No. 9, 281 (March 1, 1930).—Figures and facts given, as well as information relative to the use of the rotating furnace to produce steam in a sulphate mill.—J.F.O.

Process for the Removal of Objectionable Smelling Gases, Such as Mercaptans or Compounds Similar to Mercaptans, or Waste Gases or Steam Containing These Mercaptans. I. G. Farbenindustrie A. G. Frankfurt a.M. Germany. Austrian pat. 115,042 (May 15, 1929).—The gases are led through contact

masses, such as, copper oxide, cerium oxide, vanadium oxide, in presence of oxygen or oxygen containing substances.—J.F.O.

Description of the Technical and Economical Process in the Recovery of Soda in the Sulphate Industry. Ing. Wermer Gunther and Dipl. Ing. Kaufmann Theodor Kleiniche. Papierfabr. 28, No. 17, 281-8 (April 27, 1930).—Numerous data, curves and cost figures, besides a description and operation of the soda recovery system are given and elaborated upon—J.F.O.

Regeneration of the Causticized Sludge in the Sulphate and Soda Pulp Manufacture. Rudolf Lorenz. Papierfabr 28, No. 7, 97-103 (Feb. 16, 1930).—Ashes from the boiler house can be used on the bottom and sides of the settling pond. The settled sludge can be used as a fertilizer, after burning, and because of its physical properties, is better suited for this purpose than the ordinary lime. Making the sludge into a chalk suitable for filler in cigarette paper, as a loading material for rubber and in the manufacture of glass, are among its possible uses. Calcium hydroxide recovery results in a yearly saving of 3 to 10 per cent. The results of researches conducted in the burning of the sludge and literature on the subject compiled.—J.F.O.

Process for the Recovery of Resin from the Waste Liquor of the Alkaline Cooking Process. Societe Chimique des Resins du Pin, Paris, France. Norwegian pat. 47,181 (Feb. 4, 1929).—The rosin contained in the waste liquor in the form of resinates is separated when the liquor is decomposed by stirring with acid, chiefly, sulphuric acid. A cold treatment, followed by a warm one with a rosin dissolving substance, preferably turpentine, whereupon through decantation, the liquor and lignin become separated on the surface leaving the clear rosin solution. The solvent is finally removed by distillation in vacuum.—J.F.O.

Process for the Recovery of Pure Oils. Composed of Cymol. Furfural, Turpentine and Similar Oils, from the Oils Coming Off in the Manufacture of Sulphite Cellulose from Wood. Kubler and Niethammer, Kriebstein Germany and Walter Leupold, German pat. 493,480 (July 15, 1926).—The raw emulsion composed of aqueous sulphurous acid and oil is distilled with direct steam. The mulsified oil is separated from the condensate by the use of vacuum.—J.F.O.

Process for the Purification of Alkali Liquors contaminated by Organic Materials. Rudolf Winternitz, Prague, Czechoslovakia. Austrian pat. 116,051 (Aug. 15, 1929).—The liquor containing the contaminated material is separated by the addition of alcohol.—J.F.O.

Process and Arrangement for the Evaporation of Caustic and Crust Forming Solutions. Plinio Bringhenti, Mailand, Italy. German pat. 494,502 (Jan. 8, 1926).—The process works with a substance insoluble in the solution used in a spray form serving as the heating element and in immediate contact and in continuous circulation with the solution evaporated. The process is characterized in that the heating and evaporating of the solution takes place in two periods of time following each other and occuring in two separate chambers. The partial evaporation of the solution in complete absence of the heat carrier takes place in the second chamber. The heating of the solution takes place exclusively in the first. The heat carrier covering the liquid prevents evaporation of the solution. According to claim No. 2 liquid paraffin is used as the heat carrier. The paraffin is heated to a temperature which is lower than the boiling point of the solution and a thick layer of paraffin is allowed to float continuously on the solution in order to prevent its evaporation and at the same time to purify and clarify the paraffin.—J.F.O.

Sulphite Processes

Sodium Sulphite and Bisulphite from Waste Mercerizing Liquors, Etc. Zellstofffabrik Waldhof and O. Faust. Eng. pat. 317,040, (August. 9, 1926).—Waste soda liquors from mercerizing, artificial silk manufacture or cooking of wood fiber or the like are treated with sulphur dioxide to precipitate organic substance and to produce a solution of sodium sulphite or bisulphite.—A.P.-C.

Process for the Manufacture of Concentrated Liquid Sulphurous Acid From a Gas Mixture Containing Sulphur Dioxide Gas. Malmindustries A. S. Oslo, Norway. Swedish pat. 68,318 (Feb. 6, 1928).—The sulphurous acid is absorbed under pressure in a liquid and driven off by either decreasing the pressure or heating or both. The conditions for absorption, especially the temperature and pressure are so chosen that the volume per cent of sulphur dioxide gas in the mixture to be absorbed is held at 3 to 2 with the percentage of sulphur dioxide gas in the absorption liquid. When the gas mixture contains 18 per cent of sulphur dioxide by volume, an absorption solution containing at least 12 grams sulphur dioxide per 100 grams of liquid results.—J.F.O.

Developments in the Sulphite Industry During the Past Two Years. E. Holton Papier-Journ. 18, 117-21 (1930)-Electrical precipitation after cooling the SO_2 gas removes last traces of SO_3, solenium, arsenic and solids. Present tendencies are toward higher SO_2 concentrations in the acid and higher temperatures. It so doubtful if concentrations above 6-7 per cent give any decided advantages. High temperatures in acid making require special installations and are limited by the fact that monosulphite will precipitate out at too high temperatures. This point depends on the line content, SO_2 concentration and the amount of returned liquor. Much work has been done on systems for filling digesters, and results of 10 per cent kg. pulp per cu. meter cooking volume (6.5 lbs. per cu. ft.) have been reported. The extent to which chips are packed in the digester will affect circulation. The Morterud system of liquor circulation is now applicable to the sulphite process using direct steam. New acid-resisting steels have made this a technical possibility. Cooking time is generally being shortened by improved steaming methods. New pulping processes have also been developed such as the semi-sulphite by the Forest Products Laboratory at Madison and the Keebra process. Woods other than spruce and hemlock are beginning to be used in the sulphite process. The use of other bases than lime have been proposed for many years but no commercial developments have as yet been initiated. Utilization of waste liquor has made some advances in that a method has been proposed for precipitation of the organic matter in a form easily filtered. A practical evaporator has also made its appearance but the economic justification for evaporating to a combustible density is doubtful. No greater advances have been made in bleaching since the introduction of high density bleaching. Technical control and the use of automatic recording and regulating instruments are steadily increasing.—C.E.P.

Critical Investigation of the Evolution of the Mill Methods Used in the Manufacture of Sulphite Pulp, as Culled from the Current Literature. Fr. Muller and P. Walter, Darmstadt, Germany. Wochbl. Papierfabr. 61, No. 11, 412-416 (March 13, 1930).—The specific heat of the cooking acid is 1.0 which is about three times that of wood, 0.33; hence of the total heat 63-70 per cent is used in heating the cooking acid. A description of the hot acid process used at the Waldhof mill, as well as figures and facts are given. A division of the heat used, such as that necessary to heat the lining, radiation losses, relief gas, condensation, etc.—J.F.O.

Concerning Ground Wood and Sulphite Production. Zellstoff Papier 3, 172-4 (March 1930).—A review and discussion of the new ideas on ground wood and sulphite.—J.F.O.

General Equipment

For photostatic copies of articles appearing in the Abstract Section, address the chairman of the Abstracts Committee, Dr. Clarence J. West, National Research Council, 21st and B Streets, Washington, D. C. The charge for this service is 25 cents per page. Copies of United States patents may be ob-

tained from the U. S. Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Heating Requirements for Machine Rooms. A. E. Montgomery, J. O. Ross Engineering Corp. Chicago. Paper Trade J. 90, No. 10, 61-62 (March 6, 1930); Pulp Paper Mag. Can.: 29, 365-366 (March 6, 1930).—A discussion of the various items which must be taken into account in establishing a paper machine room heat balance.—A.P.-C.

Prevention of Pump Breakdowns. Edw. Ingham. Pulp Paper Mag. Can. 29, 355-356, 360 (March 6, 1930).—A discussion of the importance of dependable pumping equipment to efficient operation of pulp and paper mills, and of the care which they should be given to prevent breakdowns.—A.P.-C.

Valve Service a Dominant Consideration. Reginald Trautschold. Paper Trade J. 90, No. 6, 58-66 (Feb. 6, 1930).—A discussion of the requirements in the construction and design of valves for use in the pulp and paper industry, dealing in turn with the different classes of valves.—A.P.-C.

Lubrication in Paper Mills. E. W. H. Rennick. S. F. Bowser and Co. Pulp Paper Mag. Can. 29, 380-382 (March 13, 1930).—A brief discussion of a continuous circulating lubrication system and description of its method of operation.—A.P.-C.

Cranes, Hoists, Trucks. Reginald Trautschold. Paper Trade J. 90, No. 8, 291-299 (Feb. 20, 1930,—A few specific examples are given of relatively inexpensive materials handling systems in pulp and paper mills, showing that the savings effected amply justified the cost.—A.P.-C.

Pulp Testing

Determination of the Degree of Purity of Cellulose Fibers. M. Freiberger, Z von Vass and L. Hönig. J. Soc. Dyers Col. 46, 111-118 (1930).—The reducing power of cellulose is utilized as a means of determining its purity or degree of degradation, and is determined by extracting the soluble reducing constituents with caustic soda (specific gravity 1.0375) and oxidizing the extract with potassium ferricyanide, or, preferably, by digesting the cellulose directly with a caustic alkaline solution of potassium ferricyanide and determining the ferri-cyanide formed. In the first method several successive extractions with caustic soda must be made to ensure complete extraction of the reducing constituents. The reducing power of the cellulose is termed the ferricyanide number (= g. of potassium ferricyanide reduced by 100 g. of the cellulose); the oxygen number is the equivalent quantity (in g.) of oxygen per 100,000 g. of the cellulose. In the first method 1 g. of cellulose cut up into small pieces is boiled for half an hour with 150 cc. of caustic soda (specific gravity 1.0375) in an erlenmeyer flask provided with a ball stopper. The contents are then cooled, filtered through a Jena fritted-glass filter (No. 1), the filtrate is diluted to 250 cc., and the residue similarly extracted until the extract is free from reducing properties. 10 cc. of each extract are then heated together with 9 cc. of 0.005 *N* potassium ferricyanide in a test tube immersed in a boiling water bath for 10 min., 2 cc. of 30 per cent acetic acid are added, the mixture is cooled, a few crystals of potassium iodide are dissolved therein, 10 c.. of a zinc sulphate solution (50 g. of zinc sulphate crystals and 250 g. of sodium chloride per liter) are added, and the iodine liberated by the residual ferricyanide is titrated with 0.005 *N* sodium thiosulphate. In the second method 0.2 g. of cellulose is heated as above with 10 cc. of 0.005 *N* potassium ferricyanide and 10 cc. of 10 per cent caustic soda, and the residual ferricyanide then determined also as in the first method. The ferricyanide number obtained by the first method is usually about 14 per cent higher than that given by the second, which is not attributable to oxidation during the extraction. Sizing impurities in the cellulose effect the ferricyanide number and must be removed before its determination.—A. P.-C.

Interim Report of the Pulp Evaluation Committee. Proc. Tech. Sect. Paper Makers' Assoc. 10, 4-42 (1929).—An apparatus has been designed, and is described, for the purpose of making standard sheets for testing the unbeaten strength of pulps. The apparatus consists essentially of a disintegrator, a sheet-making machine comprising a cylindrical deckle-box, 6.25 in. in diameter, with a 150-mesh wire, and constant-head drainage system, a couch roll, a sheet press, stainless steel drying plates, and a device for clamping the sheets at the edges during drying. A sample of pulp equivalent to 24 g. of bone-dry fiber is thoroughly wetted out, made to 2000 cc., and disintergrated for 75,000 revolutions at 3,000 r.p.m. Mechanical pulps are diluted to 8 liters; chemical pulps, to 16 l. 800 cc. of chemical pulp stock, or 420 cc. of mechanical, are poured into the container of the sheet machine, water being run in to a height of 35 cm. above the wire. After gentle agitation to distribute the fibers, the drain-cock is opened, the sheet allowed to drain for 0.5 min. after the bulk of the water has disappeared, and the container removed. The sheet is couched off the wire by means of blotters, and is transferred to a stainless steel plate. Seven sheets are made in this way, the drying plates being alternated with blotters and the stack pressed at 50 lb. per sq. in. for 5 min. The order of the sheets is then reversed and the pressing repeated. The sheets are air-dried, being clamped at the edges to prevent shrinkage. A. M. G. finish is imparted to the sheets. After conditioning at 65 per cent relative humidity and 70 deg. F., tests are made for thickness, basis of weight, tensile strength, tearing strength and bursting strength. The strengths are reported as factors independent of the basis weight. In dealing with mechanical pulps, the Canadian freeness tester is recommended for checking the fineness. The method has been adopted as standard by the Papermakers' Association. The experimental work carried out by the Committee is described as a separate publication. A full bibliography is appended.—A. P.-C.

Evaluation of Unbleached Chemical Wood Pulps. G. Hall. Proc. Tech. Sect. Papermakers' Assoc. 10, 85-138 (1929).—The unbeaten strength test is not considered suitable for unbleached pulps, particularly sulphate pulps, owing to the difference in response to beating. The strongest pulp on unbeaten test is not necessarily the strongest after beating. Unbeaten tests depend more on felting capacity than on the ultimate strength of the fibers. For beating under standard conditions, the Abbe pebble mill and the Lampen ball-mill are compared. The new type of Lampen mill is recommended. After beating the pulps are made into circular sheets, 10 in. in diameter, couched on to ferrotype plates, pressed at 214 lbs. per sq. in., dried at 50 deg. to 60 deg. C., and tested for strength. Increasing pressure gives rise to increased tensile, folding and bursting strengths, and lowers tearing strength. Differences in strength of machine-made papers and laboratory-made sheets is attributed to the high pressures exerted by the press rolls of the paper machine, the presence of fragmentary fibers in the back water, and the more even distribution of the fibers in the laboratory method. Conditions may be chosen so that the different factors cancel out to give comparable results. Pulps beaten in a Lampen mill need only to be pressed at 50 lbs. per sq. in. to give sheets of equal strength to machine-made paper from the same pulp. The lignin content of pulps is a measure of the degree of cooking, and determines the bleachability. The amount of rosin present is independent of the degree of cooking, but varies according to the process used. The cooking degree is determined rapidly by permanganate absorption tests. Alpha-cellulose tests are of little value for unbleached pulps. For a given bleachability, sulphite pulps hydrate more readily than do sulphate pulps; similarly, sulphite pulps cooked with indirect steam have the higher bursting and tensile strengths, but the lower folding and tearing strengths. Strength increases with lignin content, tearing strength showing a maximum at 5 per cent lignin. Porosity, or air permeability, is a better indication of the condition of the fibers in a sheet than "beating degree." The same amount of beating produces a more porous sulphate sheet than sulphite sheet. The porosity of sheets made from sulphate pulps is proportional to the cooking degree, the harder the pulp the more porous the sheet. Absorbency is proportional to cooking degree for both kinds of pulp.—A.P.-C.

Section of the
COST DEPARTMENT
of the
American Paper and Pulp Association

Edited by T. J. Burke C. A. Director Cost Dept.

Sherman Act Antiquated*

By Thomas W. Lamont [1]

There can be no question that the world is just now finding itself in a severe industrial and commercial depression. Looking at this depression as a whole, and not simply as it concerns our own country, the general consensus of opinion ascribes this world-wide phenomenon chiefly to the following causes:

Causes of Depression

"1—To production outrunning consumption, not only in many basic commodities, such as cotton, wheat, copper, rubber, silk, sugar and oil, but also in many manufactured products.

"2—In part to the effort made in many parts of the world to hold up commodity prices artificially, whether in rubber, cotton, wheat, coffee, copper, or what not. When prices for such commodities finally gave way, the severity of the business collapse was accentuated.

"3—To the fall in the price of silver and thus in the purchasing power of perhaps one-quarter of the world's population as represented by India and China.

"4—To a shifting, on an almost unprecedented scale, of gold holdings among various countries. Thus, from the beginning of 1929 to date, the Bank of France and the Federal Reserve Banks of America have increased their gold reserves in the aggregate amount of approximately $1,200,000,000, a large part of this being drawn from the central bank reserves of other countries.

"5—The current political unrest in many quarters of the globe, including notably India, China and South America.

"6—In certain countries of the globe, especially America, to a spirit of rampant speculation. For some years many people lost interest in investing their money in good bonds returning a fair rate of interest. They wanted quick speculative profits, with the inevitable result that everybody knows.

As to the extent of overproduction of basic commodities, most figures as to world production are of necessity incomplete and imperfect. But the following table, which has been compiled from the best sources available, shows clearly what an excessive rate of increase the year 1929 disclosed:

	Average Annual Rate of Increase in Production 1923-1928	Rate of Increase in Production 1929 over 1928
Cotton	0.8%	8.2%
Sugar	5.8	6.2
Rubber	6.5	20.1
Copper	5.6	8.9
Crude Petroleum	5.1	10.5
Pig Iron	4.9	11.6

Says Anti-Trust Laws Cause Waste

"In the matter of over production here there can be no question that our somewhat antiquated anti-trust laws have been in part responsible for encouraging excessive construction of plant and equipment in the industrial field. The present law constitutes almost a mandate to every wide-awake manufacturer to duplicate the facilities of his rival, and the result is bound to be a great economic waste. I am not assuming to suggest the sort of remedial legislation that should be had in order to avoid this wastage of capital, brought about through almost unbridled competition. But at least we can remember that the present anti-trust laws date from 1890. Would it not seem advisable for our national legislature, at least once in a forty-year period, to review the workings of a statute like the Sherman Anti-Trust act which bears so vitally upon the problems of labor and capital?

"In the midst of the efforts which the community has been making to meet abnormal conditions and to bring adjustment out of maladjustment, we run into many people, especially in the United States of America, who argue that the slump in trade can be cured by new laws or by some new formulae. They ignore the fact that in America our situation has been gravely accentuated, as I have said, by the extremes to which our people—who are at times given to extremes—have gone. For several years the public bought ahead, speculated, made money and spent it. Then the turn came. Now we may be thankful that these same people are working and saving. We must let this process develop, encourage our recovery to be orderly and step by step. We must not try to over-stimulate ailing-business with nitro-glycerine pills; for if we do we may have further explosions!

Back to Sober Sense of Realities

"Our community as a whole has manifestly got back to a sober sense of realities. In that respect the situation is far sounder than it was fourteen months ago. Incidentally we have complicated this situation of ours—though no one can as yet determine whether seriously or not—by hanging the load of a new tariff act around our own necks. The increased rates have certainly led to a certain feeling of dismay and ill-will abroad and to some retaliatory tariffs. They have probably caused also some harm both to home trade and to our international commerce, because of the uncertainties and dislocations which they have created. It would be easy to magnify the ill results of the new American tariff. We cannot class them as controlling factors in our present depression. But there can be little dispute that we chose a most inopportune time for this particular tariff enactment. With both domestic and foreign trade beginning to show signs of a decline, as they did in the early summer of 1929, it surely was not the time to build up new barriers against world trade. Certainly, too, we did not take a happy method of encouraging our foreign customers to buy more of our goods. Nor did we make it any easier for them to pay their governmental debts to Washington.

"Be that as it may, the energy with which the Federal admin-

* Address given at meeting of Academy of Political Science, New York City, Nov. 14, 1930. New York Herald-Tribune.
[1] Partner J. P. Morgan & Co.

istration, the state governments and men of affairs generally have addressed themselves to measures of relief, for unemployment and to the adoption of such reasonable means as can be devised for curing certain of our maladjustments is worthy of full praise. Such efforts are commanding instant and active co-operation from almost every quarter. But the problems are many-sided, and as I have already indicated, we must not be impatient for too speedy solutions. We have to contend, as an English writer has pointed out, with revolutionaries who think the world so bad that only violent change can better it, and with reactionaries who consider the safety of our economic life so precarious that we must risk no new experiments upon it.

Reviews Previous Crises

"In the last century America has had many periods of serious decline in trade and industry. Since the beginning of the nineteenth century, we have experienced some thirteen crises or acute depressions in business, occurring in the following years:

1818	1857	1907
1825	1873	1914
1837	1884	1921
1847	1893	1930
	1903	

"Each period of acute crisis has invariably been followed by depression in business, this in turn gradually giving way to expanding activity, followed eventually by over-expansion, over-speculation and again a crisis. This pattern of regularly recurring expansion, over-expansion, crisis and depression, has come to be known as the 'business cycle'. Why do these cycles recur? Does the answer lie in an unsound public economy or in the weaknesses of human nature?

"Answers to these questions have for years been sought by an increasing number of economists, statisticians and other students. Offhand we call to mind the work of the National Bureau of Economic Research, the President's Conference on Unemployment of 1921, the economic departments of our leading universities and many private industrial and statistical organizations. Yet all our studies have as yet failed to show the world how to prevent these exaggerated swings of the business cycle. Certainly in large part they are due to psychological factors, to over-confidence and unreasonable optimism at one point in the cycle, and to under-confidence, undue pessimism and a general fear of vague, impending disaster at another point in the cycle.

"It is, we hope, just that low point of the cycle that we are passing through now. And the extreme of our depression is probably as unwarranted as the extreme of our exaltation was fourteen months ago. In saying this I am but repeating what you all well know. But let us have no-misgiving as to the ability of our country to win through its difficulties. Our economic, our financial, our banking world are far better ordered—even though for the moment in our gloom we may fail to realize the fact—than they have been in the past. In the Federal Reserve we have a currency and banking system strong enough to endure all the strain we are likely to put upon it, and equipped to supply ample credit for all sound enterprise. Savings bank deposits have materially increased in the last eight months. The stocks of merchandise in the hands of manufacturers and merchants is not excessive as it was in 1921. Our great corporations are well financed and have large resources of liquid capital. And while at times like these we are apt to disparage the efforts of analytical study, nevertheless, we are gradually advancing towards a better understanding and handling of economic cause and effect.

"Again, I say, not only shall we win through, but we are winning through. The process is already under way—that process of working and saving, the exercise of patience and courage. Two years ago in the midst of what certainly seemed to many persons a dangerous expansion of speculative activity—but with no apparent end to it in sight—General Dawes, our ambassador at London, remarked to me there: 'This round of speculation cannot go on. I don't know when it is going to stop. But you will wake up some morning and find that the American people have turned over in bed and that the speculative orgy is over.'

"General Dawes was quite right. The American people—in the words of his homely phrase—turned over in bed one night a little over a year ago and have been on the wrong side of the bed ever since. In the same way one of these bright mornings that same American people will be found to have turned over in bed once more and this time in the right direction.

"I have wandered a long way off from the workings of the Young plan. But as I look across the Atlantic and see the slow and patient upbuilding of a war-torn Europe; as I see the resolution and the courage with which our brethren oversees have undertaken problems infinitely more critical than our own; as I turn again to America and witness the spirit of steadfastness and co-operation which our own community is showing in its difficulties, I have come to believe that Isaiah must have been a prophet of our own day and generation when he said: "They helped every one his neighbor; and every one said to his brother, be of good courage."

Boston Paper Trade Fairly Active

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 15, 1930.—In view of business conditions generally and compared with some other industries, the paper trade of Boston and New England has been making a fair amount of sales in the aggregate. Neither fine nor wrapping paper is particularly active, but December is a rather quiet month each year, due to the fact that inventories are being taken.

There is likewise a seasonal slackness in box board, although in individual cases, at least, there is an improvement. Some are looking forward to a more lively business in box board after the first of the year, basing their feeling on letters received, tentative orders and actual orders. A tendency on the part of box board manufacturers to carry as small an amount of supplies as possible on hand is naturally reflected in smaller purchases of waste paper and a downward movement of prices. This tendency seems to be stronger than ever this year and is evident in other lines requiring paper stock, particularly roofing material. One of the most important roofing mills has announced that the plant would need no more roofing rags for the rest of the year. Shavings and old kraft have a downward trend.

K. V. P. Co. Entertains Engineers

[FROM OUR REGULAR CORRESPONDENT]

KALAMAZOO, Mich., December 16, 1930.—The Kalamazoo Vegetable Parchment Company Tuesday evening entertained a joint meeting of the Peninsula Section of the American Society of Mechanical Engineers, Kalamazoo Engineers Club and the Chief Engineers Club of Kalamazoo Valley, at a dinner.

Jacob Kindleberger, president of the Kalamazoo Vegetable Parchment Company, welcomed the guests. S. H. Meyer, Grand Rapids, A. S. M. E. delegate from the Peninsula section to the national convention in New York, gave a report on that gathering and Ralph A. Hayward, general manager of the Kalamazoo Vegetable Parchment Company, showed reels of pictures of the plant and its operations, also giving a history of the company.

This was followed by an inspection of the several divisions, all being in operation.

Saranac Pulp & Paper Co. Resumes

[FROM OUR REGULAR CORRESPONDENT]

PLATTSBURG, N. Y., December 16, 1930.—Operations have been resumed at the mills of the Saranac Pulp and Paper Company following the completion of a new power line several miles long. The employees were idle about a week following the decision of the Associated Electric and Gas Corporation to cease supplying power when it learned its contract with the paper company was not to be renewed. The mills employ several hundred workers and have been running on day and night schedules for some time.

Details For Plant and Equipment Inventory*

By Lee Heyer White, C. P. A.

A substantial proportion of the assets of companies engaged in manufacturing represents investment in plant and equipment. The gross book values of these assets are usually an accumulation of purchase prices, freight, and installation costs of purchases, and the material, labor and overhead costs of units constructed by the company's own mechanical departments. Against these values, reserves are provided for the estimated depreciation and obsolescence which has accrued since the date of installation.

In many instances plant and equipment accounts have originated from figures that represent lump purchase prices, or from original construction costs which are a confusion of buildings, machinery, and equipment. Subsequent additions to the original values will consist of purchases of new equipment and new construction and installations at cost, and sometimes purchases of used equipment at a depreciated value.

Adjustments of Book Values

During a period of years there will be many adjustments of book values to reflect dismantlements, sales of equipment, replacements, and restorations. These adjustments often are based upon estimates, due to lack of sufficient details as to the date of acquisition of the items affected, their actual cost, depreciation accruals, and expenditures for reconditioning. Sometimes no adjustment at all is made of the value of permanently discarded equipment because of the failure to report such changes properly.

As a company expands it usually becomes desirable to increase the number of accounts designated to control plant and equipment, and the corresponding reserves. New depreciation rates will be used for the new classifications, and rates of old classifications may be revised. These changes in equipment classifications, and depreciation rates may be made as from a fixed rate without proper redistribution of existing plant and equipment values and reserves.

It frequently happens that units of equipment exceed their estimated life, with the result that they become over-depreciated. If attempts are made to rectify this condition, due to the lack of underlying records, it is often impossible to make the necessary adjustments with a sufficient degree of accuracy.

Some or all of these conditions affecting the reliability of plant and equipment book values occur to a greater or lesser degree in the average manufacturing company. Therefore, the book value of a major asset gradually becomes less and less representative of present worth, unless the errors and discrepancies can be corrected. In the case of other physical assets such as merchandise, a similar situation would develop if adjustments were not made periodically on the basis of physical inventories. This same procedure is applicable to the verification of plant and equipment values.

Should Make Inventory of Equipment

A physical inventory of plant and equipment including buildings and building equipment does not involve any unusual inventory problems. Because of the fact that equipment is relatively stationary as compared with raw materials and work in process, the physical listing of buildings and equipment can be consummated with a high degree of accuracy. The best results will be obtained if tags numbered numerically are attached to each unit for the purpose of entering thereon location, description, condition in terms of percentage and quantity, whenever several items of the same kind and size are grouped together. In the case of miscellaneous items, such as tools in use, it would be advisable to adopt an arbitrary percentage for condition, say fifty per cent, regardless of physical appearance, as varying percentages according to actual conditions would, in this instance, necessitate clerical work disproportionate to the values involved.

The tags should be carefully checked to see that all units of equipment have been tagged and the proper locations, descriptions, and percentages recorded thereon. After this check, no equipment should be moved until the tags have been collected and delivered to the accounting office and all tag numbers have been accounted for.

Items of a Kind Should Be Grouped

Upon reaching the accounting department the inventory tags should be assorted by equipment classification, and all items of a kind grouped together regardless of location. The values which should represent actual cost can ordinarily be found in the purchase, installation, and construction records, supported in most instances by purchase invoices, freight bills, requisitions and labor tickets. In the case of standard small tools, usually the present list prices less the trade discount will be found satisfactory for valuation purposes.

In some cases it may be advisable to communicate with vendors to determine the proper cost values, and occasionally it will be necessary to estimate the cost price of a unit on the basis of related items. No insurmountable difficulties should be experienced in valuing plant and equipment tags, because similar problems are often met and satisfactorily solved in the case of physical inventories of raw and manufactured materials.

The amount of reserve required to offset the condition percentage and probable accrued obsolescence should be entered on each tag. If an arbitary percentage is adopted in the case of any group, in accordance with the suggestion previously made for small tools, the depreciation reserve required for such a group can be determined on the total cost value rather than on individual items.

The tags should next be sorted under the various equipment classifications by departments. The gross asset values and corresponding reserves should be summarized by plant and equipment classifications, and the ledger controlling accounts adjusted to the inventory figures. If the difference between gross asset values and reserves (net values) as determined from the inventory is less than the net book worth, the decrease in value becomes a charge against surplus. If the net inventory value is greater, the difference should be credited to a reserve for contingencies account.

Data Contained on the Tags

The data contained on the tags should be entered upon a permanent card record designed to provide for each item, unit, or group of items, as follows:

Date acquired.
Purchase cost.
Freight.
Installation cost-material, labor, overhead.
Construction cost-material, labor, overhead.
Depreciation rate.
Changes in depreciation rates and dates.
Dates of reconditioning and cost divided into material, labor and overhead.
Location and changes of location.

When filed permanently by plant and equipment classification and thereunder by departments, these equipment cards will become a readily available source of any information that will thereafter

* The American Accountant.

be required. They also will form the basis of the asset valuations whenever a subsequent physical check of plant and equipment is made, which will reduce the expense of such an inventory to a relatively insignificant figure.

Changes Should Be Carded Immediately

To keep the equipment record file up to date, changes affecting any item should be entered upon the corresponding card as soon as they occur. New cards should be made out for all additions subsequent to the date of the inventory. Cards representing equipment scrapped or sold should be removed to a dead file. Also periodically the values shown on the cards should be totalled by equipment classifications and reconciled with the balances shown in the corresponding ledger accounts.

The expense of an initial inventory of plant and equipment as outlined above will not be unreasonable. Considered from the standpoint of the added strength, which it will give to the values in a balance sheet for credit purposes and the security of stockholders, it becomes a necessity. Unless such a check is made at the end of every three to five-year period, it is possible that the public accountant will be obliged to qualify his certificate attesting to the reliability of the balance sheet figures.

New Price List Principal Grades of Box Board

By E. Victor Donaldson, Vice Pres. and Gen. Mgr., Robert Gair Co.

Within the past few weeks, the Robert Gair Company has established and published a new price list for the principal grades of boxboard. In taking this step the company had two objectives: first and foremost was a desire to re-establish some sort of correlation between price and cost of production; second and almost equally important, to bring the whole question of boxboard price out of the industrial underworld and into the open of sound economics and good business practice. In other words, we think the time has come to speak frankly.

Box Board Industry Began To Sicken

Many months before the Wall Street collapse of October and November 1929 dropped the business of the country to its present level, the boxboard industry had begun to sicken. The circumstances which brought the illness about are neither rare nor peculiar. For some years there has been a surplus production capacity of between 20 and 25 per cent in the industry and the competition of manufacturers to unload this surplus on a satiated market accomplished exactly the same result that it has in other industries, namely, a relentless hunt for orders for their own sake, at virtually any price, merely to keep plants operating at something like a full schedule.

Up to a certain point, competition is decidedly a benefit to the industry, to the manufacturer and to the buyer or consumer. It has proved a benefit to the boxboard manufacturer and to the industry by forcing a closer application to the problems of efficient, low-cost production and improvement of method and practice. I think it can be said for the larger units in the industry and for the industry as a whole that there has been an increase of at least 20 per cent in operating efficiency during the last three or four years and a resulting reduction in operating costs. Had it stopped at this point, had competition been confined to a cost-price basis, there would have been little complaint from the manufacturer or buyer. The more efficient producer would have made a fair profit and the less efficient would have had to improve his practice or eventually leave the field.

Last Year Tells A Different Story

The last year or more tells a rather different story. Production costs have played only a minor part in determining the price at which boxboard has been sold. The prevailing price basis has been "so-and-so much less than A's, B's, C's or somebody else's price" which in turn was figured in very much the same way. Price lists were not announced and the entire selling side of the business has been conducted pretty much along "whispering campaign" lines. The sales made at figures below thousands of tons.

This sniping at prices also has served to halt the movement for better standards, simplification of grades, and improved quality which had been making considerable progress. Under the pressure of an extremely competitive market a premium has been put on cutting corners in meeting specifications.

Adding to the disorganization of the industry, the market for raw materials out of which boxboard is made such as Swedish Kraft pulp and waste paper has been falling into the selfsame situation. Early in December I was informed on the most reliable authority that Swedish Kraft, then selling for around $30 a ton on this side, was costing the lowest-cost Swedish producers around $35 a ton and that for the high-cost mills, more than $40 a ton, delivered on this side.

No Industry Can Survive On Quicksand

It is obvious that no industry can long survive with its foundations resting on such quicksands. The condition is not a healthy one for the manufacturer of boxboard or for the package manufacturer or consumer. Consider what the present price of boxboard is based on.

First we take raw materials at about 15 per cent below their cost of production, put them through a complicated manufacturing process and then sell them at a figure which again shows a loss to the producer. The consumer may profit temporarily but in the long run he will have to pay for his short holiday. There is only one sound basis for the boxboard industry or any other industry to do business on, a basis on which price is built in its proper relation to low-cost, efficient manufacturing and selling. Only then can the industry pay an adequate wage to the workers it employs, keep its plants modernized and efficient, and attract the capital and operating skill necessary for its continued growth. Only then will the consumer be assured of a continual supply at reasonably stable prices and quality of the standard which they have a right to demand.

Awards for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 17, 1930—Barton, Duer & Koch Paper Company has been awarded the contract for furnishing the Government Printing Office with 70,000 pounds of calendered tag board in 23¼-inch rolls, at $5,232, bids for which were received on November 24.

The R. P. Andrews Paper Company has been awarded the contract for furnishing the Government Printing Office with 40,000 pounds (15,600 sheets) of No. 2 quality hard rolled binders board at 3.45 cents per pound. Reese & Reese will furnish 1,388 pounds (2,500 sheets) of 40 x 60 555, 100 per cent rope manila paper at 12.5 cents per pound. Bids for these items were received on November 24.

Barton, Duer & Koch Paper Company will furnish 38,000 pounds (14,780 sheets) of best quality hard rolled binders board at 5.5 cents per pound and the R. P. Andrews Paper Company will furnish 9,940 pounds (75,000 sheets) of 50 per cent rag white natural tint passport paper at 27 cents per pound. Bids for these items were received on November 17.

WOOD TANKS

Last a Life-Time

Illustration shows Cylindrical Pulp Tanks for Paper Mills. Equipped with Agitators. Specially constructed or irregular shaped tanks can be supplied and prices quoted on receipt of specifications or drawings. This organization has been building tanks of every description for more than fifty-five years and its products have gone to all parts of the United States, Canada, South America, Europe, Africa and Australia. A large stock of the various kinds of tank lumber is carried in our yards and allowed to air season thoroughly before being used. Our factory is up-to-date in every respect and is completely equipped with the most modern machinery, driven by individual motors. Wood tanks built to your own specifications.

The HAUSER-STANDER TANK CO.

Cincinnati, Ohio

Aids to the Paper Maker

SAVING BEATING TIME

Reduced beating time can be measured in dollars and cents savings in your mill. An important mill in Ohio who adds 40 pounds of P.Q. Silicate to the beater is able to reduce the time from 4.1 hours to 3.6 hours.

May we send you without obligation a copy of Bulletin No. 6-A, "Evidence on Paper"?

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121 S. Third St., Philadelphia

Chicago Office: 205 W. Wacker Drive

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Paper Making

Large Production
Ample Reserves
Prompt Deliveries
Purity 99½%

TEXAS GULF SULPHUR CO

(Incorporated)

75 East 45th Street, New York City

Mine: Gulf, Matagorda County, Texas

Top—Biggs Welded Rotary Digester. Second—Biggs Riveted Rotary Digesters. Third—Biggs Standard Cylinder Rotary Bleaching Boilers. Bottom — Biggs Tumbling Digester.

Biggs Builds

Welded Globe Rotary Digesters
Riveted Globe Rotary Digesters
Cylinder Rotary Bleaching Boilers
Tumbling Digesters, Welded or Riveted
Stationary Vertical Digesters, Welded or Riveted
Penstocks
Pipe Lines, Welded or Riveted
Welded or Riveted Steel Plate Construction of Every Description.

Write for our folder, "Unusual Steel Plate Construction"

The Biggs Boiler Works Company

East Buchtel Avenue

Akron, Ohio

New York Detroit Chicago

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING DECEMBER 13, 1930

SUMMARY

Cigarette paper	25 bls., 841 cs.
Wall paper	93 bls., 10 cs.
Paper hangings	37 bls., 7 cs.
Painted paper	1 cs.
News print	102 bls., 2040 rolls
Printing paper	206 bls., 244 cs. 84 rolls
Wrapping paper	1 bl., 33 cs., 24 rolls
Filter paper	22 cs.
Drawing paper	46 cs.
Colored paper	4 cs.
Baryta coated paper	21 crates, 2 cs.
Surface coated paper	49 cs.
Transfer paper	2 cs.
Decalcomania paper	17 cs.
Note paper and envelopes	1 cs.
Writing paper	11 cs.
Oiled paper	3 cs.
Stencil paper	8 cs.
Gummed paper	6 cs.
Wafer paper	18 cs.
Card board boxes	10 cs.
Miscellaneous paper	43 cs., 167 rolls

CIGARETTE PAPER

Max Spiegel & Son, La Bourdonnais, Bordeaux, 1 cs.

American Tobacco Co., La Bourdonnais, Bordeaux, 400 cs.

De Manduit Paper Corp., Waukegan, Havre, 277 cs.

Liggett & Myers Tobacco Co., Ile de France, Havre, 89 cs.

Southern Pacific Lines, Majestic, Southampton, 5 cs.

Murray Hill Co.,, Majestic, Southampton, 5 cs.

Max Spiegel & Son, Pr. Fillmore, Genoa, 25 bls.

P. J. Schweitzer, Pr. Fillmore, Marseilles, 64 cs.

WALL PAPER

F. J. Emmerich, American Banker, London, 2 bls.

F. J. Emmerich, G. Washington, Hamburg, 18 bls, 2 cs.

Universal Car Loading Co., Berlin, Bremen, 4 cs.

C. Grimmer & Son, Berlin, Bremen, 5 bls.

A. C. Dodman Jr., Inc., Majestic, Southampton, 1 cs.

A. L. Diament & Co., Majestic, Southampton, 3 cs.

F. J. Emmerich, Samaria, Liverpool, 15 bls.

J. E. Bernard & Co., Belgenland, Antwerp, 3 bls.

The Prager Co., Belgenland, Antwerp, 34 bls.

——, Ohio Maru, Hamburg, 3 bls.

F. J. Emmerich, Pr. Roosevelt, Hamburg, 13 bls.

PAPER HANGINGS

W. H. S. Lloyd & Co., American Banker, London, 35 bls, 1 cs.

Whiting & Patterson Co., Inc., Majestic, Southampton, 1 cs.

A. C. Dodman Jr., Inc., Samaria, Liverpool, 5 cs., 2 bls.

PAINTED PAPER

C. Grimmer & Son, Ile de France, Havre, 1 cs.

NEWS PRINT

J. Madden, Berlin, Bremen, 669 rolls.

——, Berlin, Bremen, 39 rolls.

Perkins Goodwin & Co., Berlin, Bremen, 42 rolls.

Baldwin Paper Co., Bird City, Kotka, 180 rolls.

——, Bird City, Kotka, 431 rolls.

Walker Goulard Plehn Co., Bird City, Kotka, 102 bls.

J. Madden, Bird City, Kotka, 466 rolls.

Parsons & Whittemore, Inc., Pr. Roosevlt, Hamburg, 213 rolls.

PRINTING PAPER

Phoenix Shipping Co., Berlin, Bremen, 206 bls.

——, Berlin, Bremen, 64 bls., 84 rolls.

E. Deitzgen & Co., Rotterdam, Rotterdam, 66 cs.

F. C. Strype, Rotterdam, Rotterdam, 24 cs.

W. A. Foster & Co., Transylvania, Glasgow, 7 cs.

P. C. Zuhlke, Belgenland, Antwerp, 2 cs.

International F'd'g. Co., Jean Jadot, Antwerp, 19 cs.

T. N. Fairbanks, Pr. Fillmore, Genoa, 62 cs.

WRAPPING PAPER

Standard Products Corp., Belgenland, Antwerp, 12 cs., 24 rolls.

Sylvania Industrial Corp., Belgenland, Antwerp, 21 cs., 1 bl.

FILTER PAPER

H. Reeve Angel & Co., Inc., American Banker, London, 11 cs.

H. Reeve Angel & Co., Inc., Majestic, Southampton, 11 cs.

DRAWING PAPER

H. Reeve Angel & Co., Inc., American Banker, London, 5 cs.

Keuffel & Esser Co., G. Washington, Hamburg, 41 cs.

COLORED PAPER

S. Gilbert, Berlin, Bremen, 4 cs.

BARYTA COATED PAPER

J. H. Schroeder Banking Corp., Berlin, Bremen, 21 crates, 1 cs.

Globe Shipping Co., Berlin, Bremen, 1 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Belgenland, Antwerp, 42 cs.

P. C. Zuhlke, Belgenland, Antwerp, 7cs.

TRANSFER PAPER

Fuchs & Lang Manfg. Co., Pr. Roosevelt, Hamburg, 2 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Samaria, Liverpool, 17 cs. (duplex)

NOTE PAPER AND ENVELOPES

C. Delton, Majestic, Southampton, 1 cs.

WRITING PAPER

Globe Shipping Co., Berlin, Bremen, 1 cs.

Meadows Wye & Co., Berlin, Bremen, 1 cs.

Distinctive Writing Paper Co., Ile de France, Havre, 1 cs.

A. Flinn & Co., Ile de France, Havre, 3 cs.

Selsi & Co., Inc., Ile de France, Havre, 2 cs.

Guibout Freres, Ile de France, Havre, 3 cs.

OILED PAPER

Eugene, Ltd., American Banker, London, 3 cs.

STENCIL PAPER

A. B. Dick Co., Canadian Leader, Sydney, 8 cs.

GUMMED PAPER

Heemsoth Basse & Co., Rotterdam, Rotterdam, 6 cs.

WAFER PAPER

B. L. Haas, Rotterdam, Rotterdam, 18 cs.

CARD BOARD BOXES

P. Seguin Co., Pr. Fillmore, Marseilles, 10 cs.

MISCELLANEOUS PAPER

C. Bruning & Co., Inc., Rotterdam, Rotterdam, 167 rolls.

Interantional F'd'g. Co., Rotterdam, Rotterdam, 4 cs.

——, Berlin, Bremen, 6 cs.

Keller Dorian Paper Co., Ile de France, Havre, 28 cs.

Cheramy, Inc., Ile de France, Havre, 2 cs.

E. Dietzgen & Co., Majestic, Southampton, 1 cs.

Whitfield Paper Works, Sanyo Maru, Kobe, 2 cs.

P. C. Zuhlke, Belgenland, Antwerp, 2 cs.

RAGS, BAGGING, ETC.

S. Birkenstein & Son, American Banker, London, 143 bls. paper stock.

Castle & Overton, Inc., Sud Africano, B. Ayres, 103 bls. cottons.

Castle & Overton, Inc., Sud Africano, B. Ayres, 41 bls. linsey garments.

Castle & Overton, Inc., Sud Africano, B. Ayres, 611 bls. rags.

Castle & Overton, Inc., Sud Africano, B. Ayres, 65 bls. scrap hessions.

G. J. Shuster, Sud Africano, Havana, 21 bls. rags.

Arkus Inc., Rotterdam, Rotterdam, 42 bls. paper stock.

——, Rotterdam, Rotterdam, 152 bls. cotton waste.

New York Trust Co., Waukegan, Havre, 35 bls. paper stock.

J. Cohen & Son, Samaria, Liverpool, 66 bls. paper stock.

Bankers Trust Co., Sanyo Maru, Shanghai, 50 bls. rags.

Castle & Overton, Inc., Sanyo Maru, Kobe, 25 bls. rags.

T. D. Downing & Co., Transylvania, Glasgow, 57 bls. bagging.

American Express Co., Transylvania, Glasgow, 3 bls. paper stock.

——, Transylvania, Glasgow, 6 bls. rags.

Castle & Overton, Inc., L. A. Christensen, Barcelona, 519 bls. rags.

Baring Bros. & Co., Coelleda, Manchester, 48 bls. rags.

A. W. Fenton, Inc., Ohio Maru, Hamburg, 71 bls. rags.

Chemical Bank & Trust Co., Ohio Maru, Hamburg, 49 bls. rags.

——, Pr. Roosevelt, Hamburg, 146 bls. tares.

OLD ROPE

E. Butterworth & Co., Inc., Transylvania, Glasgow, 47 coils.

International Trust Co., L. A. Christensen, Barcelona, 40 coils.

Brown Bros. & Co., Kerhonkson, Cardiff, 78 coils.

Furness Withy & Co., London Exchange, London, 97 coils.

CASEIN

Kalbfleisch Corp., Southern Cross, B. Ayres, 34 bags.

WOOD PULP

Irving Trust Co., Berlin, Bremen, 175 bls. wood pulp.

Price & Pierce, Ltd., Bird City, Wallvik, 3000 bls. sulphite, 500 tons.

Pagel Horton & Co., Inc., Bird City, Gefle, 7258 bls. wood pulp, 1346 tons.

Bulkley Dunton & Co., Bird City, ——, 2875 bls. wood pulp, 584 tons.

——, Bird City, Kotka, 1015 bls. sulphite, 173 tons.

Perkins Goodwin & Co., Odensholm, Wifstavarf, 1625 bls. sulphate.

Bulkley Dunton & Co., Carlsholm, ——, 6195 bls. wood pulp.

E. M. Sergeant & Co., Carlsholm, Hernosand, 150 bls. sulphite.

Stora Kopperberg Corp., Carlsholm, Skutskar, 2000 bls. wood pulp.

Johanson Wales & Sparre, Inc., Carlsholm, Svartvik, 600 bls. sulphite.

Johanson Wales & Sparre, Inc., Carlsholm, Soraker, 2500 bls. wood pulp.

Perkins Goodwin & Co., Carlsholm Wifstavarf, 1050 bls. sulphite; 1500 bls. sulphate.

Scandinavian Pulp Agency, Inc., Carlsholm, Wifstavarf, 250 bls. sulphite.

——, Ohio Maru, Hamburg, 418 bls. wood pulp, 74 tons.

International Bank, Inc., Ohio Maru, Hamburg, 200 bls. sulphite, 30 tons.

WOOD FLOUR

Burnet Co., Rotterdam, Rotterdam, 1000 bags.

A. Bunge, Rotterdam, Rotterdam, 100 bags.

Trust Co., of New Jersey, Rotterdam, Rotterdam, 200 bags.

Burnet Co., Sac City, Rotterdam, 600 bls., 30450 kilos.

ALBANY IMPORTS

WEEK ENDING DECEMBER 13, 1930

A. P. W. Paper Co., Dago, Seven Islands, Que., 9356 bls. wood pulp, 1710 tons.

Union Screen Plate Company

Fitchburg, Mass., U. S. A. Lennoxville, P. Q., Canada

UNION BRONZE

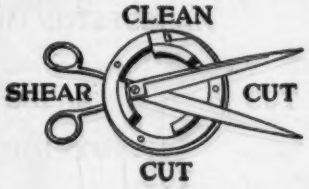
SCREEN PLATES FOR FLAT SCREENS
6 SLOTS—5 SLOTS—4½ SLOTS—4 SLOTS—PER INCH

[redacted] [redacted] [redacted]

Old Plates Reclosed and Re-cut to Accurate Gauge
Rolled Phosphor Bronze and Cop r Plates for Rotary Screens

Sole Manufacturers of the Union Witham Screen Plate Vat and Fastener

LANGSTON



For clean, square-edged, tightly wound rolls, Langston Slitters are unequalled. The famous Shear-Cut parts the paper sharply—*instead of crushing it.* Ask for catalog giving full details.

SAMUEL M. LANGSTON CO.
Camden, N. J.

SLITTERS

1864 1930

"EXCELSIOR" FELTS

for every grade of

PULP AND PAPER

We continue to maintain at the top the quality of Excelsior Felts, as we have done since we, as pioneers, made the first endless paper machine felts manufactured in America.

Seamless felts for fast running.
Satin Style felts for finish.
Special felts to meet every condition.
Send us your felt problems.

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Dispensing Cabinets
AND
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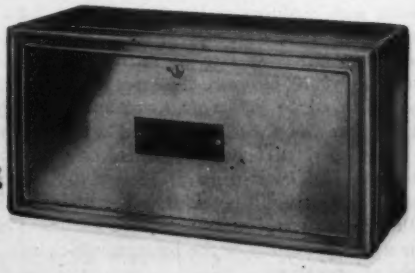
ARE
The STANDARD of the PAPER TRADE
For Towels, Toilet, Napkins, Etc.



GRIFFITH-HOPE CO., West Allis, Wisc.

Imports of Paper and Paper Stock

Continued from Page 72

PHILADELPHIA IMPORTS

WEEK ENDING DECEMBER 13, 1930

F. Weber & Co., Waukegan, Hayre, 5cs. drawing paper.
J. M. Hagy Waste Works, Waukegan, Dunkirk, 44 bls. rags.
Belgam Corp., Sanyo Maru, Kobe, 100 bls. rags.
Tradesmans National Bank, Exporter, Barcelona, 103 bls. rags.
Castle & Overton, Inc., L. A. Christensen, Barcelona, 118 bls. rags.
Castle & Overton, Inc., Ala, Antwerp, 95 bls. rags.
Katzenstein & Keene, Inc., Ala, Antwerp, 298 bls rags.
E. Butterworth & Co., Inc., Ala, Antwerp, 30 bls. rags.
Philadelphia National Bank, Ala, Antwerp, 18 bls. thread waste.
E. M. Sergeant & Co., Carlsholm, Hernosand, 2700 bls. sulphite.
Perkins Goodwin & Co., Carlsholm, Hernosand, 1375 bls. wood pulp.
Stora Kopperberg Corp., Carlshorlm, Skutskar, 1250 bls. wood pulp.
Johanson Wales & Sparre, Inc., Carlsholm, Svartvik, 2490 bls. sulphite.
Gilman Paper Co., Carlsholm, Sundsvall, 640 rolls news print.
Bulkley Dunton & Co., Carlsholm, ——, 1125 bls. wood pulp.
——, Yearby, Fowey, 3432 tons, 15 cwts., china clay.

BOSTON IMPORTS

WEEK ENDING DECEMBER 13, 1930

Lagerloef Trading Co., Bird City, Helsingfors, 169 bls. sulphite, 25 tons.
Price & Pierce, Ltd., Bird City, Wallvik, 10200 bls. sulphite, 1700.
——, Bird City, Kotka, 1016 bls. sulphate, 203 tons; 2738 bls. sulphite, 459 tons.
Bulkley Dunton & Co., Bird City, ——, 250 bls. wood pulp, 50 tons.
Oxford University Press, Samaria, Liverpool, 5 cs. printing paper.
G. F. Malcolm, Samaria, Liverpool, 9 cs. tissue paper.
F. S. Webster, Samaria, Liverpool, 1 cs. tissue paper.
Darmstadt Scott & Courtney, Exporter, Barcelona, 80 bls. pickers.
——, Exporter, Barcelona, 103 bls. pickers.
R. Bishop Manfg. Co., Ala, Antwerp, 120 bls. rags.
Irving Trust Co., Ala, Antweryp, 29 bls. bagging.
V. Galaup, Ala, Antwerp, 40 bls. rags.
E. Butterworth & Co., Ala, Antwerp, 122 bls. bagging.
Mededith Linen Mills, Ala, Antwerp, 68 bls. flax waste.
F. J. Fawcett, Ala, Antwerp, 2 bls. flax waste.
Spaulding Fibre Co., Ala, Antwerp, 811 bls. flax waste.
American Express Co., Ala, Antwerp, 16 cs., 215 rolls paper.
Brown Bros. & Co., Ala, Antwerp, 49 coils old rope.
French Worsted Co., Ala, Antwerp, 44 cs. paper tubes.
H. P. Lambert Co., Ala, Antwerp, 56 bls. rags.
Atterbury Bros. Inc., The Angeles, B. Ayres, 834 bags casein, 50040 kilos.
J. Anderson & Co., Odensholm, Stockholm, 300 bls. sulphite.
Parsons & Whittemore, Inc., Odensholm, Stockholm, 240 bls. sulphite.
Stora Kopperberg Corp., Odensholm, Skitskar, 3000 bls. wood pulp.
Brown Bros. & Co., Odensholm, Gothenburg, 45 coils old rope.
Price & Pierce, Ltd., Odensholm, Gothenburg, 500 bls. wood pulp.
J. Anderson & Co., Odensholm, Gothenburg, 1750 bls. sulphite.
Atterbury Bros. & Co., Odensholm, Gothenburg, 598 bls. kraft soda pulp.
Perkins Goodwin & Co., Odensholm, Gothenburg, 768 bls. sulphite.
Perkins Goodwin & Co., Odensholm, Svartvik, 300 bls. sulphite.
Johanson Wales & Sparre, Inc., Odensholm, Svartvik, 600 bls. sulphite.
Bulkley Dunton & Co., Odensholm, ——, 11850 bls. wood pulp.
Atkinson Haserick Co., Pr. Fillmore, Genoa, 14 cs. paper.

NEW ORLEANS IMPORTS

WEEK ENDING DECEMBER 13, 1930

Whitney National Bank, Toronto, Sundsvall, 1902 rolls news print.
Parsons & Whittemore, Inc., Toronto, Sundsvall, 166 rolls news print.
Pagel Horton & Co., Inc., Toronto, Husum, 6000 bls. sulphate.
——, Toronto, Oslo, 231 rolls news print.
Atterbury Bros. Inc., Toronto, Oslo, 1200 bls. wood pulp.

GALVESTON IMPORTS

WEEK ENDING DECEMBER 13, 1930

Southern Trust Co., Toronto, Sundsvall, 600 rolls news print.

HUSTON IMPORTS

WEEK ENDING DECEMBER 13, 1930

T. E. Ash & Co., Toronto, Oslo, 215 rolls paper.

Cooperative Study of Sulphate Pulping Process

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 17, 1930—A fundamental study of the chemical reactions involved in the sulphate pulping process has been undertaken by the Bureau of Standards in cooperation with the University of Alabama. A branch station of the bureau has been established for the purpose at the university.

This process is used for the production of the southern kraft paper which has attained large proportions in recent years. More definite information on the complicated chemical reactions of this process is sought to extend its field of usefulness. Such information should be beneficial in several respects, such as in the production of by-products, in the production of fibers have a greater variety of use, in the use of more fibrous materials, and in more complete recovery of the pulping chemicals.

Study of this problem was undertaken at the request of the Alabama Industrial Development Board and the cooperative arrangements were made through this organization.

Unity Paper Mill Creditors Get 10 Per Cent

[FROM OUR REGULAR CORRESPONDENT]

POTSDAM, N. Y., Dec. 13.—At a hearing held this week before Federal Judge Frederick H. Bryant it was finally agreed to settle claims with creditors of the Unity Paper Mills on a ten per cent basis. The claims amount to about $119,000 and the proposition for settlement is said to be satisfactory to all concerned. The receivers of the business, Bernard Wade and Hollis Martin, have been directed to prepare an accounting of the financial status of the firm which will be presented at the next meeting. The plant is being operated under the management of the receivers in the production of book paper. Relative to the settling of first and second bond issues it is said that a settlement has also been reached although the terms were not made public. Plans are under way for a reorganization of the business which will allow the continuance of operations.

To Remove Hackensack Branch to Glens Falls

GLENS FALLS, N. Y., December 16, 1930.—Plans are under way for the removal of the Hackensack, N. J., branch of the Imperial Paper and Color Corporation to this city where the business will be consolidated with the local plant. All manufacturing activities are to be centralized in this city which incidentally will necessitate the taking on of about one hundred additional workers. It is not planned, however, to use all of the equipment now housed in the Hackensack plant and only that portion needed for making the firms's product will be moved here from New Jersey, according to officials. The company is now constructing a new warehouse on its property and it is understood that this will be used in storing some of the surplus machinery for future use. Plans calls for the turning out of the Hackensack product at the local mill soon after January 1 and it was announced that a number of the workers planned to move to this city. As the result of this move it is understood that operations at the Plattsburg branch will also be increased and there is a possibility that more equipment will be installed.

Sewall Staff Attend Champion Fibre Case

OLD TOWN, Me., 1930.—James W. Sewall, Kenneth M. Clark, B. C. Marsh and Joseph D. Latno of the Sewall forestry office at Old Town, Maine and Port Arthur, Ontario, are in attendance at the case between the State of Tennessee Park Commission and the Champion Fibre Company, which is being held at Sevierville, Tenn., to determine the value of certain of the company's lands within the boundaries of the proposed Smoky Mountain National Park. The Sewall estimate of timber has been set up by the Champion Fibre Company as one of the measures of damage which it claims by reasons of the loss of its spruce reserve, if any of that reserve is taken for the Smokey Mountain Park project by the park commission.

3 FEATURES of our "TOP FELTS for BOARD MACHINES"

A Trial Felt for Your Machines Will Prove These Facts.

THE WATERBURY FELT CO., SKANEATELES FALLS, N.Y.

FAIRBANKS

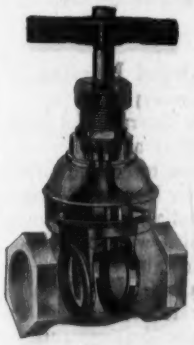


Fig. 0201

Renewable Seat Ring Gate Valves

are built to give service under the most severe conditions.

The renewable features have been perfected, are simple and may be relied upon as being entirely effective.

Renewals can be easily and quickly made, when necessary, without taking the valve from the pipe line.

Screw End and Flange End types.
Made in Bronze or of metals to meet special conditions.
Good for 150 lb. Steam Working Pressure

Write for Descriptive Bulletin and No. 20 Valve Catalog.

THE FAIRBANKS COMPANY

BOSTON NEW YORK PITTSBURGH

Distribution in All Principal Cities.

West Virginia Pulp and Paper Company

Manufacturers of

SUPERCALENDERED and MACHINE FINISHED BOOK and LITHOGRAPHIC PAPERS

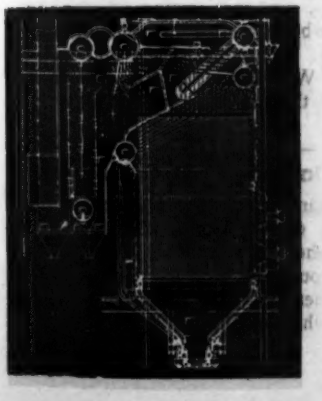
Offset, Envelope, Bond, Writing, Cover and Music Paper, High Grade Coated Book, Index Bristol, Post Card, Kraft and Label Papers.

also

Bleached Spruce Sulphite and Soda, Kraft Pulp

280 Park Ave. New York — 35 East Wacker Drive Chicago

503 Market St., San Francisco, Cal.
Sixth and Chestnut Sts., Philadelphia, Pa.



BADENHAUSEN STEAM GENERATING UNITS

installed in some of the largest pulp and paper mills in the United States and Canada

MAXIMUM STEAM
AT
HIGHEST EFFICIENCY
WITH
LEAST CAPITAL INVESTMENT and OPERATING COSTS

Result:—Enormous savings in cost of pulp and paper produced.

BADENHAUSEN CORPORATION

General Offices and Works
CORNWELLS HEIGHTS (PHILA.), PA.

Imports of Paper and Paper Stock

Continued from Page 72

PHILADELPHIA IMPORTS

WEEK ENDING DECEMBER 13, 1930

F. Weber & Co., Waukegan, Hayre, 5cs. drawing paper.
J. M. Hagy Waste Works, Waukegan, Dunkirk, 44 bls. rags.
Belgam Corp., Sanyo Maru, Kobe, 100 bls. rags.
Tradesmans National Bank, Exporter, Barcelona, 103 bls. rags.
Castle & Overton, Inc., L. A. Christensen, Barcelona, 118 bls. rags.
Castle & Overton, Inc., Ala, Antwerp, 95 bls. rags.
Katzenstein & Keene, Inc., Ala, Antwerp, 298 bls rags.
E. Butterworth & Co., Inc., Ala, Antwerp, 30 bls. rags.
Philadelphia National Bank, Ala, Antwerp, 18 bls. thread waste.
E. M. Sergeant & Co., Carlsholm, Hernosand, 2700 bls. sulphite.
Perkins Goodwin & Co., Carlsholm, Hernosand, 1375 bls. wood pulp.
Stora Kopperberg Corp., Carlshorlm, Skutskar, 1250 bls. wood pulp.
Johanson Wales & Sparre, Inc., Carlsholm, Svartvik, 2490 bls. sulphite.
Gilman Paper Co., Carlsholm, Sundsvall, 640 rolls news print.
Bulkley Dunton & Co., Carlsholm, ——, 1125 bls. wood pulp.
——, Yearby, Fowey, 3432 tons, 15 cwts., china clay.

BOSTON IMPORTS

WEEK ENDING DECEMBER 13, 1930

Lagerloef Trading Co., Bird City, Helsingfors, 169 bls. sulphite, 25 tons.
Price & Pierce, Ltd., Bird City, Wallvik, 10200 bls. sulphite, 1700.
——, Bird City, Kotka, 1016 bls. sulphate, 203 tons; 2738 bls. sulphite, 459 tons.
Bulkley Dunton & Co., Bird City, ——, 250 bls. wood pulp, 50 tons.
Oxford University Press, Samaria, Liverpool, 5 cs. printing paper.
G. F. Malcolm, Samaria, Liverpool, 9 cs. tissue paper.
F. S. Webster, Samaria, Liverpool, 1 cs. tissue paper.
Darmstadt Scott & Courtney, Exporter, Barcelona, 80 bls. pickers.
——, Exporter, Barcelona, 103 bls. pickers.
R. Bishop Manfg. Co., Ala, Antwerp, 120 bls. rags.
Irving Trust Co., Ala, Antweryp, 29 bls. bagging.
V. Galaup, Ala, Antwerp, 40 bls. rags.
E. Butterworth & Co., Ala, Antwerp, 122 bls. bagging.
Mededith Linen Mills, Ala, Antwerp, 68 bls. flax waste.
F. J. Fawcett, Ala, Antwerp, 2 bls. flax waste.
Spaulding Fibre Co., Ala, Antwerp, 811 bls. flax waste.
American Express Co., Ala, Antwerp, 16 cs., 215 rolls paper.
Brown Bros. & Co., Ala, Antwerp, 49 coils old rope.
French Worsted Co., Ala, Antwerp, 44 cs. paper tubes.
H. P. Lambert Co., Ala, Antwerp, 56 bls. rags.
Atterbury Bros. Inc., The Angeles, B. Ayres, 834 bags casein, 50040 kilos.
J. Anderson & Co., Odensholm, Stockholm, 300 bls. sulphite.
Parsons & Whittemore, Inc., Odensholm, Stockholm, 240 bls. sulphite.
Stora Kopperberg Corp., Odensholm, Skitskar, 3000 bls. wood pulp.
Brown Bros. & Co., Odensholm, Gothenburg, 45 coils old rope.
Price & Pierce, Ltd., Odensholm, Gothenburg, 500 bls. wood pulp.
J. Anderson & Co., Odensholm, Gothenburg, 1750 bls. sulphite.
Atterbury Bros. & Co., Odensholm, Gothenburg, 598 bls. kraft soda pulp.
Perkins Goodwin & Co., Odensholm, Gothenburg, 768 bls. sulphite.
Perkins Goodwin & Co., Odensholm, Svartvik, 300 bls. sulphite.
Johanson Wales & Sparre, Inc., Odensholm, Svartvik, 600 bls. sulphite.
Bulkley Dunton & Co., Odensholm, ——, 11850 bls. wood pulp.
Atkinson-Haserick Co., Pr. Fillmore, Genoa, 14 cs. paper.

NEW ORLEANS IMPORTS

WEEK ENDING DECEMBER 13, 1930

Whitney National Bank, Toronto, Sundsvall, 1902 rolls news print.
Parsons & Whittemore, Inc., Toronto, Sundsvall, 166 rolls news print.
Pagel Horton & Co., Inc., Toronto, Husum, 6000 bls. sulphate.
——, Toronto, Oslo, 231 rolls news print.
Atterbury Bros. Inc., Toronto, Oslo, 1200 bls. wood pulp.

GALVESTON IMPORTS

WEEK ENDING DECEMBER 13, 1930

Southern Trust Co., Toronto, Sundsvall, 600 rolls news print.

HUSTON IMPORTS

WEEK ENDING DECEMBER 13, 1930

T. E. Ash & Co., Toronto, Oslo, 215 rolls paper.

Cooperative Study of Sulphate Pulping Process

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 17, 1930—A fundamental study of the chemical reactions involved in the sulphate pulping process has been undertaken by the Bureau of Standards in cooperation with the University of Alabama. A branch station of the bureau has been established for the purpose at the university.

This process is used for the production of the southern kraft paper which has attained large proportions in recent years. More definite information on the complicated chemical reactions of this process is sought to extend its field of usefulness. Such information should be beneficial in several respects, such as in the production of by-products, in the production of fibers have a greater variety of use, in the use of more fibrous materials, and in more complete recovery of the pulping chemicals.

Study of this problem was undertaken at the request of the Alabama Industrial Development Board and the cooperative arrangements were made through this organization.

Unity Paper Mill Creditors Get 10 Per Cent

[FROM OUR REGULAR CORRESPONDENT]

POTSDAM, N. Y., Dec. 13.—At a hearing held this week before Federal Judge Frederick H. Bryant it was finally agreed to settle claims with creditors of the Unity Paper Mills on a ten per cent basis. The claims amount to about $119,000 and the proposition for settlement is said to be satisfactory to all concerned. The receivers of the business, Bernard Wade and Hollis Martin, have been directed to prepare an accounting of the financial status of the firm which will be presented at the next meeting. The plant is being operated under the management of the receivers in the production of book paper. Relative to the settling of first and second bond issues it is said that a settlement has also been reached although the terms were not made public. Plans are under way for a reorganization of the business which will allow the continuance of operations.

To Remove Hackensack Branch to Glens Falls

GLENS FALLS, N. Y., December 16, 1930.—Plans are under way for the removal of the Hackensack, N. J., branch of the Imperial Paper and Color Corporation to this city where the business will be consolidated with the local plant. All manufacturing activities are to be centralized in this city which incidentally will necessitate the taking on of about one hundred additional workers. It is not planned, however, to use all of the equipment now housed in the Hackensack plant and only that portion needed for making the firms's product will be moved here from New Jersey, according to officials. The company is now constructing a new warehouse on its property and it is understood that this will be used in storing some of the surplus machinery for future use. Plans calls for the turning out of the Hackensack product at the local mill soon after January 1 and it was announced that a number of the workers planned to move to this city. As the result of this move it is understood that operations at the Plattsburg branch will also be increased and there is a possibility that more equipment will be installed.

Sewall Staff Attend Champion Fibre Case

OLD TOWN, Me., 1930.—James W. Sewall, Kenneth M. Clark, B. C. Marsh and Joseph D. Latno of the Sewall forestry office at Old Town, Maine and Port Arthur, Ontario, are in attendance at the case between the State of Tennessee Park Commission and the Champion Fibre Company, which is being held at Sevierville, Tenn., to determine the value of certain of the company's lands within the boundaries of the proposed Smoky Mountain National Park. The Sewall estimate of timber has been set up by the Champion Fibre Company as one of the measures of damage which it claims by reasons of the loss of its spruce reserve, if any of that reserve is taken for the Smokey Mountain Park project by the park commission.

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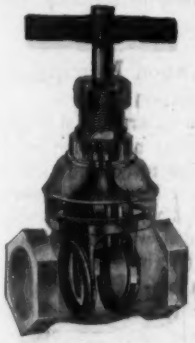

Fig. 0201

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Made in Bronze or of metals to meet special conditions.
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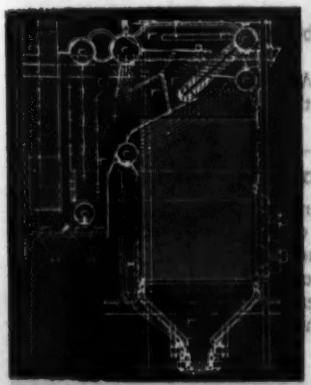

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WITH
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BADENHAUSEN CORPORATION
General Offices and Works
CORNWELLS HEIGHTS (PHILA.), PA.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday December 17, 1930

As usual at this time of the year, trading in the local paper market is only moderately active. Nevertheless, supplies are moving into consumption in good volume. In the opinion of many observers, demand will not improve until after the turn of the year. Efforts are being made to stabilize prices, which are generally holding to formerly quoted levels.

No further developments have been reported in the news print situation. Information gathered by the News Print Service Bureau shows that during November Canadian mills operated at 67.6 per cent of rated capacity, United States mills at 68 per cent and Newfoundland mills at 105.1 per cent. Stocks of news print paper at United States and Canadian mills at the end of November totalled 72,190 tons, equivalent to 4.2 days average output.

Although the volume of orders has declined, box board production is being maintained in the same volume as of late. Prices are somewhat steadier. Demand for fine paper continues fairly persistent and tissues are going forward in seasonal manner. The coarse paper market is practically unchanged and kraft wrapping paper is moving into consumption at a normal pace.

Mechanical Pulp

Due mainly to the recent drought, which was general, the ground wood market is exhibiting a strong undertone. Offerings of both domestic and imported mechanical pulp are rather limited and, as a result, prices are firm. No. 1 imported is quoted at from $28 to $32 per ton, on dock; while No. 1 domestic is offered at from $28 to $34 per ton, f.o.b. mill.

Chemical Pulp

Conditions in the chemical pulp market are practically unchanged. Most of the business transacted of late has been along routine lines. Offerings of the various grades are sufficient to take care of current requirements. Imported bleached sulphite is quoted at from $3.00 to $4.25, on dock, Atlantic ports, according to grade. Domestic bleached sulphite is selling at from $2.65 to $4.75, f.o.b. pulp mill.

Old Rope and Bagging

While the old rope market was rather quiet during the past week, the trend was fairly steady. Domestic manila rope is still quoted at from $3.00 to $3.25, and foreign manila rope at from $2.70 to $2.85. Small mixed rope is going forward in fair volume. The bagging market shows little change. Gunny bagging is firm, with offerings limited. Scrap bagging is in good demand, but roofing bagging is dull.

Rags

Trading in the domestic rag market is quiet, due mainly to the near approach of the inventory period. Cotton cuttings are only in moderate request. Roofing grades continue depressed. Mixed rags are moving in fair volume for the season. The imported rag market shows little improvement and prices, in most instances, are nominal.

Waste Paper

The feature of the paper stock market during the past week was the improved demand for strictly folded news. Other of the lower grades continue quiet, however. The better grades of waste paper are fairly steady. Hard white envelope cuttings are holding up well and interest in soft white shavings is being maintained. No radical price changes have been recorded.

Twine

Holiday demand for the various grades of twine is fairly persistent, considering the general trade depression. Supplies are moving into consumption in satisfactory volume for the season. Some observers are optimistic regarding the future trend of the twine industry. Prices are generally holding to formerly quoted levels, and shading is infrequent.

Toronto Favored for Brotherhood Meeting

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., December 16, 1930.—The International Brotherhood of Papermakers has not yet arrived at a decision relative to the meeting place for the next convention to be held in March although it is said many of the locals favor Toronto. Sentiment has been growing towards the city of Buffalo also but the decision rests with the executive board which will soon make its choice known. The customary meeting of the executive board will not be held in this city next month but it is scheduled to take place instead during the week prior to the opening of the convention. Officials claim that the new arrangements were mapped out for the purpose of cutting down expenses inasmuch as some of the members reside in the Middle West and it is felt that the business to be transacted could be completed before the start of the convention without any inconvenience. By carrying out this plan the union claims that traveling expenses will be eliminated to some extent.

Sells Paper Machine to Bogalusa Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., December 16, 1930—The Union Bag and Paper Company has sold the paper machine and equipment housed in No. 5 mill to the Bogalusa Paper Company, of Bogalusa, La., and plans are now under way for removal to that place. The mill had not been used for manufacturing purposes for some time and it was decided recently by officials of the firm to dispose of the equipment. A number of former employees are aiding in the dismantling work which is expected to consume several weeks. The equipment includes driers, wet ends, motors, jordans, calendars and reels. The task is being carried on under the supervision of Paul Birk, engineer. A section of the mill was recently leased to the Imperial Wall Paper Company for storage purposes and it is understood that an effort will now be made to dispose of it.

Pusey & Jones Omitted From Index

Owing to an oversight the name of the Pusey & Jones Corporation has failed to appear in our Advertisers Classified Index Section. As is well known, the Pusey & Jones Corporation is one of the largest builders of pulp and paper mill equipment and has built and installed in representative mills during the past year a number of paper machines which are now in successful operation.

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CANADIAN REPRESENTATIVES Waterous, Limited Brantford, Ont., Canada — 133-39 Finsbury Pavement, London, E. C. H. J. MARX SOLE AGENTS FOR EUROPE

Miscellaneous Markets.

Office of the PAPER TRADE JOURNAL,
Wednesday, December 17, 1930

BLANC FIXE.—The blanc fixe market is practically unchanged. Demand for both the pulp and the powder is seasonal. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45.00 per ton, while the powder is selling at from 3¾ cents to 4½ cents per pound, in barrels, at works.

BLEACHING POWDER.—Demand for bleaching powder is moderately active. The contract movement is above normal for the time of year. Prices are holding to previously quoted levels in most instances. Bleaching powder is selling at from $2.00 to $2.35 per 100 pounds, in drums, at works.

CASEIN.—Weakness developed in the casein market and prices declined slightly. Domestic standard ground is quoted at 9½ cents and finely ground at 12 cents per pound. Argentine standard ground is selling at 11 cents and finely at 12 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—No radical changes were reported in the caustic soda market. Shipments against contract are moving in good volume. Solid caustic soda is quoted at from $2.90 to $2.95, while the flake and the ground are selling at from $3.30 to $3.35 per 100 pounds, in large drums, at works.

CHINA CLAY.—Steadiness prevails in the china clay market. The contract movement is well up to average. Prices remain unchanged. Imported china clay is quoted at from $15 to $25 per ton, ship side, while domestic paper making clay is selling at from $8 to $13 per ton, at mine.

CHLORINE.—The chlorine market was fairly active and contracts are being booked for 1931 delivery in satisfactory volume. Supplies are moving into consumption at a normal pace for the season. Chlorine is quoted at $2.00 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—Prices continued to decline in the rosin market. Demand was rather light. The grades of gum rosin used in the paper mills are now quoted at from $5.25 to $5.50 per 280 pounds, in barrels, at yards. Wood rosin is selling at $4.10 per 280 pounds, car load lots, at southern shipping points.

SALT CAKE.—The salt cake market was rather quiet during the past week. Prices are generally holding to formerly quoted levels. Salt cake is quoted at from $16 to $17. For large tonnage German salt cake is offered at from $15.50 to $16. Chrome salt cake is selling at from $15 to $16 per ton, in bulk, at works.

SODA ASH.—Offerings of soda ash are quite adequate to take care of current requirements. Supplies are moving into consumption in fair volume. Prices remain unchanged. Contract quotations on soda ash, in car lots, at works, are as follows: in bulk, $1.15; in bags, $1.32; and in barrels, $1.55 per 100 pounds.

STARCH.—The starch market is displaying a steady trend. Production is being maintained in normal volume. Contract shipments are moving in a satisfactory manner. Prices remain unchanged. Special paper making starch is quoted at $3.62 per 100 pounds, in bags; and at $3.89, in barrels, at works.

SULPHATE OF ALUMINA.—Supplies of sulphate of alumina are going forward in seasonal volume. The contract movement is fairly satisfactory. Prices remain unchanged. Commercial grades are quoted at from $1.40 to $1.55, and iron free at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—Most of the business transacted in the sulphur market was routine. Sulphur is quoted at $18 per long ton, at mine, on orders of 1,000 tons, or over, on yearly contracts, and at $20 per ton for any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—The talc market is in a sound position. Demand is fairly persistent. Prices are generally holding to previously quoted levels without difficulty. Domestic talc is selling at from $16 to $18 per ton, in bulk; while imported talc is offered at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper
(F. o. b. Mill)

Ledgers	11.00	@	38.00
Bonds	6.75	@	53.25
Writings—			
Extra Superfine	14.00	@	32.00
Superfine	14.00	@	32.00
Tub sized	10.00	@	15.00
Engine sized	6.75	@	11.00
Book, Cased—			
S. & S. C.	5.75	@	—
M. F.	5.50	@	—
Coated and Enamel	7.00	@	10.50
Lithograph	7.50	@	14.00
Tissues—Per Ream—			
White No. 1	.65	@	.67½
Anti-Tarnish M G only	.65	@	.70
Colored	.70	@	.90
White No. 2	.55	@	.57½
Kraft	.65	@	.70
Manila	.55	@	.57½
Kraft—			
No. 1 Domestic	5.00	@	6.00
No. 2 Domestic	3.00	@	3.75
Southern	3.00	@	3.75
Imported	6.00	@	7.00
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middles	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.09¾	@	—
No. 2	.11¾	@	—
Bleached, basis 20 lbs.	.11¾	@	—
(Delivered New York)			
News, per ton—			
Rolls, contract	62.00	@	—
Rolls, spot	62.00	@	—
Sheets	67.00	@	—
Side Runs	47.00	@	52.00
Boards—per ton—			
News	32.50	@	35.00
Straw	40.00	@	45.00
Chip	30.00	@	32.00
Binders' Boards	65.00	@	70.00
Standard Test Jute Liner	40.00	@	42.00
Sgl. Mla. Lt. Chip. (F. o. b. Mill)	42.50	@	—
Wood Pulp Boards	70.00	@	80.00

Mechanical Pulp
(On Dock)

No. 1 Imported—			
Moist	28.00	@	32.00
Dry	30.00	@	34.00
(F. o. b. Mill)			
No. 1 Domestic	28.00	@	34.00

Chemical Pulp
(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	3.00	@	4.25
Easy Bleaching	2.60	@	2.80
No. 1 strong unbleached	2.10	@	2.65
Mitscherlich unbleached	2.15	@	2.70
No. 2 strong unbleached	1.95	@	2.05
No. 1 Kraft	1.60	@	1.75
No. 2 Kraft	1.40	@	1.55
Sulphate—			
Bleached (F. o. b. Pulp Mill)	2.40	@	3.85
Sulphite (Domestic)—			
Bleached	2.65	@	4.75
Easy Bleaching Sulphite	2.55	@	2.75
News Sulphite	2.35	@	2.60
Mitscherlich	2.50	@	3.25
Kraft (Domestic)	2.10	@	2.75
Soda Bleached	2.75	@	2.90

Domestic Rags
New Rags
(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	8.00	@	8.50
New White, No. 2	7.00	@	7.25
Silesias No. 1	6.50	@	7.00
New Unbleached	8.25	@	9.00
New Blue Prints	5.25	@	5.50
New Soft Blacks	4.00	@	4.50
Blue Overall	6.25	@	6.50
Washables	4.25	@	4.75
Fancy	4.75	@	5.25
Mixed Khaki Cuttings	4.75	@	5.25
Pink Corset Cuttings	7.50	@	8.00
O. D. Khaki Cuttings	5.15	@	5.75
Men's Corduroy	3.50	@	4.00
New Mixed Blacks	3.25	@	3.50
Old Rags			
White, No. 1—			
Repacked	5.25	@	5.75
Miscellaneous	4.25	@	4.75
White, No. 2—			
Repacked	3.00	@	3.50
Miscellaneous	2.30	@	2.50
St. Soiled, White	1.50	@	1.75
Thirds and Blues—			
Repacked	2.25	@	2.50
Miscellaneous	1.65	@	1.85
Black Stockings	3.25	@	3.75
Roofing Rags—			
Cloth Strippings	1.25	@	1.30
No. 1	1.25	@	1.30
No. 2	.90	@	1.00
No. 3	.70	@	.80
No. 4	.65	@	.70
No. 5A	.50	@	.60

Foreign Rags
New Rags

New Dark Cuttings	2.30	@	2.50
New Mixed Cuttings	2.25	@	2.75
New Light Silesias	6.25	@	6.50
Light Flannelettes	6.50	@	7.00
Unbleached Cuttings	8.25	@	8.75
New White Cuttings	7.50	@	8.00
New Light Oxfords	6.00	@	6.50
New Light Prints	4.75	@	5.25
Old Rags			
No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	5.75	@	6.75
No. 3 White Linens	4.75	@	5.25
No. 4 White Linens	3.00	@	3.50
No. 1 White Cotton	5.50	@	5.75
No. 2 White Cotton	4.50	@	5.00
No. 3 White Cotton	3.00	@	4.00
No. 4 White Cotton	1.70	@	1.80
Extra Light Prints	2.75	@	3.00
Ord. Light Prints	2.15	@	2.40
Med. Light Prints	1.65	@	1.75
Dutch Blue Cottons	2.00	@	2.10
French Blue Linens	2.65	@	2.75
German Blue Linens	2.25	@	2.40
German Blue Cottons	1.85	@	1.90
Checks and Blues	1.85	@	1.90
Lindsay Garments	1.20	@	1.30
Dark Cottons	1.00	@	1.10
Old Shopperies	.95	@	1.00
New Shopperies	.95	@	1.05
French Blues	1.90	@	2.00

Old Rope and Bagging
(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.55	@	1.65
Domestic	1.65	@	1.75
Wool Tares, light	1.30	@	1.40
Wool Tares, heavy	1.35	@	1.40
Bright Bagging	1.30	@	1.35
Small Mixed Rope	.90	@	1.00
Manila Rope—			
Foreign	2.70	@	2.85
Domestic	3.00	@	3.25
New Burlap Cut	2.25	@	2.50
Hessian Jute Threads—			
Foreign	3.50	@	4.00
Domestic	2.50	@	2.75

Old Waste Papers
(F. o. b. New York)

Shavings—			
Hard, white, No. 1	2.90	@	3.00
Hard, white, No. 2	2.35	@	2.50
Soft, white, No. 1	2.50	@	2.60
White envelope cuttings	3.00	@	3.10
Flat Stock			
Stitchless	.95	@	1.05
Overissue Mag.	.95	@	1.05
Solid Flat Book	.80	@	.95
Crumpled No. 1	.70	@	.85
Solid Book Ledger	1.90	@	2.00
Ledger Stock	.85	@	1.25
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	2.10	@	2.25
New Cuttings	1.50	@	1.65
Extra No. 1 old	1.25	@	1.35
Print	.60	@	.65
Bogus Wrapper	.60	@	.65
Container	.35	@	.45
Old Kraft Machine—			
Compressed bales	1.35	@	1.45
News—			
No. 1 White News	1.80	@	1.90
Strictly Overissue	.45	@	.50
Strictly Folded	.35	@	.40
No. 1 Mixed Paper	.25	@	.30
Common Paper	Nominal		

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Financing

INTERNATIONAL
ACCEPTANCE BANK, INC.
A Unit of THE MANHATTAN COMPANY
31 Pine Street New York

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AGENTS

PRICE & PIERCE, Ltd.,

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AMERICAN MADE
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500 Tons Daily

TWO LEADING AMERICAN CLAYS

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FOR COATING & FILLING
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EDGAR CLAYS ARE THE RESULT OF ALMOST A HALF CENTURY OF EXPERIENCE IN WASHING CLAYS.

TECHNICAL SERVICE AVAILABLE BOTH FOR COATING AND LOADING WITHOUT CHARGE.

Send for Samples

EDGAR BROS. CO.
50 Church St. Hudson Terminal Bdlg.
New York City

Twines
(F. o. b. Mill)

Cotton—			
No. 1	.22	@	.24
No. 2	.21	@	.22
No. 3	.19	@	.20
B. C., 18 basis	.32	@	.34
A. Italian, 18 basis	.38	@	.39
Finished Jute—			
Dark 18 basis	.20½	@	.21
Light 18 basis	.22½	@	—
Jute Wrappings, 3-6 Ply—			
No. 1	.14¾	@	—
No. 2	.13¾	@	—
Tube Rope—			
4-ply and larger	.10¼	@	—
Fine Tube Rope—			
4-ply	.12¾	@	—
3-ply	.13¾	@	—
2-ply	.14¾	@	—
Paper Makers Twine			
Balls	.08¾	@	—
Box Twine, 2-3 ply	.09	@	.10
Jute Rope	.11	@	.12
Amer. Hemp, 6	.29	@	.31
Java Sisal			
No. 1 Basis	.12	@	—
No. 2 Basis	.11¾	@	—
New Zealand Sisal	.11½	@	—
Sisal Lath Yarn—			
No. 1	.14	@	.16
No. 2	.12	@	.14
Manila Twine	.22½	@	.24½

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¾
No. 2 M. F. Book	.05½	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	5.00	@	5.50
Southern Kraft	3.75	@	4.00
No. 2 Kraft	3.75	@	4.00
Wood Tag Boards	.04¼	@	.06½
Sulphite Screenings	.03	@	.03¾
Manila Tissue—			
24x36 Sheet	.07	@	.07¼
White Tissue—			
20x30 Sheet	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	62.00	@	—
Sheets	67.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	37.50	@	—
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.35	@	2.40
White Env. Cut-			
No. 1 Soft Shavings	2.10	@	2.15
No. 1 Mixed	.30	@	.35
No. 2 Mixed	.25	@	.35
Ledger & Writings	.90	@	.95
Solid Books	.90	@	.95
Blanks	1.60	@	1.65
Krafts	1.30	@	1.40
New Kraft Cuts	1.50	@	1.70
Manila Envelope Cuttings	1.65	@	1.70
Ex. No. 1 Manila	1.30	@	1.45
Print Manila	.45	@	.50
Folded News (over-issue	.40	@	.45
Old Newspapers—			
No. 1	.33	@	.40
No. 2	.30	@	.35
Mixed Papers—			
No. 1	.30	@	.35
Roofing Stocks—			
(F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.05	@	.40
Ledgers	.08	@	.40
Writings—			
Superfine	.12½	@	.18
Extra fine	.18	@	.22
Fine	.17	@	.26
Fine, No. 2	.15	@	.25
Fine, No. 3	.09	@	.20
Book, M. F.	.05	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.09	@	.16
Coated Lithograph	.07	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.07	@	.09
Manila Sul., No. 1	.03½	@	.05½
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03½	@	.04
Southern Kraft No. 1	—	@	.03¾
Southern Kraft No. 2	—	@	.03½
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	62.00	@	—
Straw Board	52.50	@	70.00
News Board	32.50	@	35.00
Chip Board	30.00	@	32.00
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	75.00		
No. 2, per ton	70.00		
Carload lots	68.00	@	70.00
Tarred Felts—			
Regular	55.50	@	57.00
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.09	@	.09½
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07	@	.09
Black Silesia, soft	.05	@	.05½
New Unbleached	.08½	@	.09
Washable, No. 1	.04½	@	.05
Blue Overall	.07½	@	.08
Cottons—According to grades—			
Washable, No. 2	.03	@	—
New Blue	.03	@	.03¼
Fancy	.05	@	.05½
New Black Soft	.05	@	.05¾
New Light Seconds	.03½	@	.03
New Dark Seconds	1.85	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.05½	@	.05¾
No. 2 Mixed	.04½	@	.04¾
Corduroy	.03	@	.03½
New Canvas	.08½	@	.09
New Black Mixed	.03¾	@	.04½

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.50	@	1.60
Domestic	1.75	@	—
Manila Rope	3.50	@	4.00
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps—			
No. 1	1.50	@	1.60
No. 2	1.10	@	1.20
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.65	@	2.75
No. 2 Hard White	2.30	@	2.50
No. 1 Soft White	2.25	@	2.50
No. 2 Soft White	1.40	@	1.60
No. 1 Mixed	.90	@	1.00
No. 2 Mixed	.60	@	.70
Solid Ledger Stock	1.55	@	1.65
Writing Paper	1.05	@	1.25
No. 1 Books, heavy	1.00	@	1.15
No. 2 Books, light	.90	@	.95
No. 1 New Manila	2.15	@	2.30
No. 1 Old Manila	1.50	@	1.60
Print Manila	.50	@	.60
Container Manila	.45	@	.50
Old Kraft	1.35	@	1.40
Common Paper	.25	@	.35
No. 1 Mixed Paper	.25	@	.30
Straw Board, Chip	.35	@	.40
Binders Board, Chip	.35	@	.45
Corrugated Board	.50	@	.60
Overissue News	.45	@	.50
Old Newspaper	.25	@	.30

Domestic Rags (Old)

White No. 1—			
Repacked	4.25	@	4.50
Miscellaneous	3.50	@	3.75
M. G.	6.00	@	—
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.60	@	1.80
Black Stockings (Export)	3.90	@	4.25
Roofing Stock—			
Foreign No. 1	1.25	@	1.30
Repacked	.80	@	.90

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.12½
Rag content	.15	@	.30
All rag	.38	@	52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04¾	@	.06
No. 2 Kraft	.03¾	@	.05
(Less car-freight to Boston)			
Southern Kraft	.03¾	@	.04¾
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
Delivered New England points			
News Print Rolls	61.50	@	—
Straw Boards, rolls	.009		52.50
Straw Board in Sheets, basis 35s to 70s	—	@	50.00
Filled News Board	32.50	@	—
Chip Board	30.00	@	—
Chip Board (Creasing)	32.50	@	—
Single Manila Lined Chip	45.00	@	—
Single White, Patent Coated News Board Bender, No. 1	60.00	@	75.00
Single White, Patent Coated News Board Bender No. 2	55.00	@	65.00
Wood Pulp Board	75.00	@	80.00
Binder Boards	67.50	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	—	@	2.40
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	—	@	2.00
No. 1 Books, Heavy	—	@	.90
No. 1 Books, Light	.85	@	—
Crumpled Stitchless Book Stock	—	@	.70
Manila Env. Cuttings	1.85	@	2.00
No. 1 Old Manila	—	@	1.00
White Blank News	1.50	@	1.60
Old Kraft	1.20	@	1.30
Print Manila	.75	@	.80
No. 1 Mixed Paper	—	@	.15
Overissue News	—	@	.30
Old Newspapers	.37½	@	.40
Box Board, Chip	.50	@	.55
Corrugated Boxes	.35	@	.40

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	1.70	@	—
Domestic	1.60	@	—
Manila Rope—			
Foreign	—	@	2.75
Domestic	—	@	3.50
Transmission Rope	2.00	@	2.25
Mixed Strings	.80	@	.90
Jute Wool Strings	.80	@	.90
Jute Carpet Threads	1.00	@	1.10
Scrap Burlaps	1.30	@	1.35
Scrap Sisal	—	@	1.50
Scrap Sisal for shredding	—	@	1.75
Wool Tares, heavy	—	@	1.40
New Burlap Cutting	1.75	@	2.00
Australian Pouches	—	@	2.50
Heavy Baling Bagging	2.00	@	2.10
Bleachery Burlap	—	@	3.50

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.07½	@	.08
New White No. 2	—	@	.06
Silesias No. 1	.06	@	.06½
New Unbleached	—	@	.09½
Fancy	.04	@	.04½
Washable	.04	@	.04¼
Cottons—According to grades			
Blue Overalls	.06¼	@	.06¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.04	@	.04½
O. D. Khaki	.04½	@	.05
Corduroy	.03	@	.03½
New Canvas	.08	@	.08¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Twos and Blues	2.75	@	3.00
Thirds and Blues—			
Repacked	2.25	@	2.50
Miscellaneous	1.75	@	1.90
Black Stockings	3.65	@	4.00
Roofing Stock—			
No. 1	.90	@	.95
No. 2	—	@	.75
No. 3	—	@	.65
No. 4	—	@	.60

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.70	@	.85
New No. 1 white shirt cuttings	7.50	@	8.00
Dutch Blues	—	@	1.80
Lace Curtains	4.00	@	4.25
New Checks & Blues	4.25	@	4.40
Old Fustians	1.65	@	1.65
Old Linsey Garments	.90	@	1.00

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.09¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.09½	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads)	7.25	@	—
No. 3 M. F. (carloads)	4.00	@	5.75
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 4 S. C. (carloads)	6.25	@	—
No. 1 Coated and Litho	13.25	@	—
No. 2 Coated and Litho	12.25	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.50	@	—
Wrapping—			
(Delivery Points)			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.00	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.90	@	—
Kraft No. 2	5.40	@	—
(Delivered Toronto)			
News, per ton—			
Rolls (contract)	61.50	@	62.00
Sheets	67.00	@	—

Pulp
(F. o. b. Mill)

Ground Wood	30.00	@	32.00
Sulphite easy bleaching	50.00	@	—
Sulphite, news grade	70.00	@	—
Sulphite, bleached	72.50	@	75.00
Sulphate	60.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.80	@	—
Soft White Book Shavings	2.60	@	—
White Blk. News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.10	@	—
Light and Crumpled Book Stock	1.20	@	—
Ledgers and Writ-			
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	.80	@	—
Kraft	1.90	@	—
News and Scrap—			
Strictly Overissue	.70	@	—
Strictly Folded	.70	@	—
No. 1 Mixed Paper	.60	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¼

Advertising matter paged consecutively with text, has been removed here to lessen the bulk of this volume.